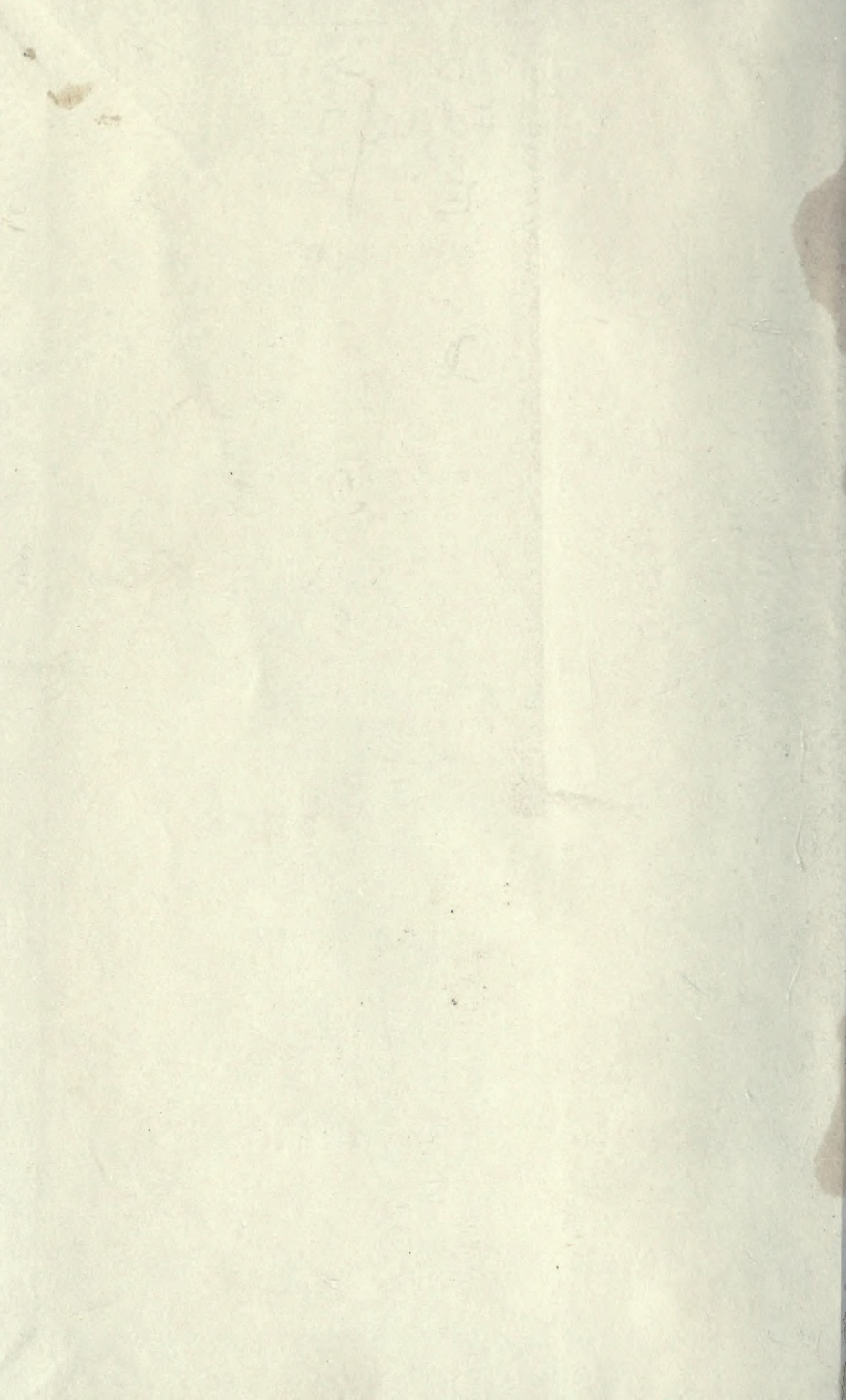




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[THE CANADA]

EDUCATIONAL

MONTHLY

AND

SCHOOL CHRONICLE.

EDITED BY G. MERCER ADAM.

VOL I.

JANUARY TO DECEMBER,

1879.

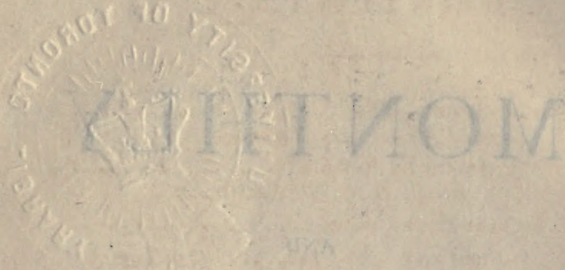
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C. B. ROBINSON, Printer, Jordan St., Toront

TORONTO.

THE CANADA EDUCATIONAL MONTHLY PUBLISHED BY THE UNIVERSITY OF TORONTO

CONTENTS.

	PAGE.
Aims of our Public School System, The.....	93
<i>Samuel McAllister, Toronto.</i>	
An Onlooker's View of "Payment by Results"	278
<i>Rev. Geo. Bruce, B.A., St. Catharines.</i>	
Authorized Etymological Text-Books, The.....	373
Arts Department, ... 42, 111, 168, 240, 312, 379, 443, 515, 567, 624	
Bible in our Schools, The.....	129
<i>Rev. Fohn Laing, M.A., Dundas.</i>	
Bases of Education, The.....	193
<i>W. D. Le Sueur, B.A., Ottawa.</i>	
Cui Bono?	98
<i>Prof. F. E. Wells, M.A., Woodstock.</i>	
Catholic Education in Ontario,.....	149
<i>Thomas O'Hagan, Belleville.</i>	
Co-Education of the Sexes, The.....	288
<i>Fno. Millar, B.A., St. Thomas.</i>	
Currency Legislation,.....	303
<i>M. B. Anderson, LL.D., Rochester.</i>	
Corporal Punishment,.....	420
<i>Richard Lewis, Toronto.</i>	
County Model Schools and their Work,.....	493
<i>S. B. Westervelt, Mount Forest.</i>	
Contributors' Department, ... 39, 108, 166, 316, 467, 526, 585, 637	
Contemporary Literature, ... 55, 116, 177, 250, 324, 400, 469, 536, 588, 639	
Contemporary Opinion on Educational Topics, 173, 245, 319, 398, 520, 570, 629	
Defects in our Training System,.....	156
<i>F. B. Somerset, St. Catharines.</i>	
Department and the School Bill, The.....	159
<i>The Editor.</i>	
Departmental Reports and the Intermediate Examination,.....	217
<i>A Head Master.</i>	

Effect of Examinations on School Culture, The	7
<i>A. Purslow, B.A., LL.B., Port Hope.</i>	
Education a Succession of Experiences, ...	60
<i>Prof. A. R. Grote, Buffalo.</i>	
Exertion and Over-Exertion, ...	295
<i>T. W. Mills, M.A., M.D., Hamilton.</i>	
English Prosody and the National Readers, ...	359
<i>James H. Knight, Lindsay.</i>	
Early Continental Educators and their Theories, ...	367
Education of Girls, as connected with their Growth and Physical Development, ...	413
<i>N. Allen, M.D., Lowell.</i>	
Examination Frauds in England, ...	437
Education and Co-Education, ...	477
<i>Principal Grant, D.D., Kingston.</i>	
English Literature in the Schools of Ontario, ...	507
<i>Geo. H. Robinson, M.A., Whitby.</i>	
Eye, The: its Structure, Functions, Defects and Preservation	561
<i>T. W. Mills, M.A., M.D., Hamilton.</i>	
Editorial Notes, ...	59, 123, 185, 258, 340, 407, 473, 539, 592, 640
First Principles of Education, I. and II.	24, 77
<i>A. W. Gundry, Toronto.</i>	
First Lessons in Arithmetic, ...	221
<i>James B. Grey, St. Catharines.</i>	
History of Education, The	551
High School Department, ...	462, 532, 581, 631
Lungs as they Concern Educators, The	15
<i>T. W. Mills, M.A., M.D., Hamilton.</i>	
Letters on the Education and Employment of Women, I., II., III., 202, 274, 351	
<i>Agnodice.</i>	
Let us Study the Children, ...	43
<i>Mrs. R. R. Bird.</i>	
Lesson, The: A Poem (selected), ...	44
Moral Discipline of the School, The	35
<i>Richard Lewis, Toronto.</i>	

Natural Science in Schools,.....	30
<i>An Amateur Biologist.</i>	
National Education in its Relation to Religion and Morality,.....	597
<i>Fohn Millar, B.A., St. Thomas.</i>	
Our School Manuals,.....	33
<i>The Editor.</i>	
Oxford "Greats,".....	135
<i>Brother Ignotus.</i>	
On some Important Principles of Comparative Grammar, as exemplified in Aboriginal American Languages,.....	144
<i>Rev. Prof. Fohn Campbell, M.A., Montreal.</i>	
On Buckle's Theory of History,.....	345
<i>Francis Rye, Barrie.</i>	
Opportunity: A Poem (selected), ...	566
Official Notices of the Department of Education. See end of January, February, April, May-June, and September Numbers.	
Promotion of Culture, The.....	65
<i>The Editor.</i>	
Public Schools of England, The; I. and II.....	235, 307
<i>Thomas Hughes, M.P.</i>	
Primary School in China, The	284
Penmanship, and how it is best taught,.....	300
<i>R. E. Gallagher, Hamilton.</i>	
Progress of Education in England, The.....	423
Public School Department,.....	466, 530, 577, 632
Reading in our Schools,.....	282
<i>Jacques.</i>	
Recreation from an Educational Point of View,.....	425
<i>Geo. F. Romanes, M.A.</i>	
Recent Changes in the Mathematical Examinations in the University of Cambridge,.....	557 ✓
<i>I. Todhunter, M.A., F.R.S., Cambridge.</i>	
Some Thoughts on School Hygiene,.....	14
<i>T. W. Mills, M.A., M.D., Hamilton.</i>	
School Museums,.....	83
<i>David Boyle, Elora.</i>	

Spelling Reform,.....	134
<i>Commissioners of State of Wisconsin.</i>	
Study of History in Schools, The.....	214
<i>J. Henderson, M.A., St. Catharines.</i>	
School-Book Editing and Authorship,.....	226
<i>The Editor.</i>	
Stray Notes on Education,.....	434
<i>Clancahill.</i>	
Study of Physics in Secondary Schools, The.....	487
<i>Prof. Trowbridge.</i>	
Science Department,.....	334, 391, 458
Study of Literature, The, with its bearing on Composition	606
<i>G. A. Chase, B.A., Galt.</i>	
Science of Conduct: The, its Place in Education	613
<i>R. Wormell, D.Sc., M.A.</i>	
Table Talk.....	641
Training of First-Class Teachers, The.....	19
<i>Jno. Seath, B.A., St. Catharines.</i>	
Training and Training Institutions,.....	86
<i>J. H. Smith, Ancaster.</i>	
Two Sonnets on Science,.....	165
<i>F. R. Barrie.</i>	
✓ Teacher's Work in the University and Public School, The.....	206
<i>Rev. President Nelles, D.D., Cobourg.</i>	
✓ Two of the Conditions of a Teaching Profession,.....	498
<i>T. H. Rand, D. C. L., Fredericton.</i>	
Tact,.....	502
<i>Miss Riddell, Madoc.</i>	
Teachers' Associations,.....	54, 114, 172, 243, 337, 395, 461, 528
✓ University Consolidation, ...	1
<i>Alpha.</i>	
Unconscious Tuition,.....	265
<i>Rt. Rev. F. D. Huntington, D.D., New York.</i>	
✓ University Questions in England,.....	541
<i>Goldwin Smith, M.A., Toronto.</i>	
Virgil for the English Student,.....	211
<i>Rev. C. P. Mulvany, M.A., Carrying Place.</i>	

Contents.

v.

Natural Science in Schools,.....	30
<i>An Amateur Biologist.</i>	
National Education in its Relation to Religion and Morality,.....	597
<i>John Millar, B.A., St. Thomas.</i>	
Our School Manuals,.....	33
<i>The Editor.</i>	
Oxford "Greats,".....	135
<i>Brother Ignotus.</i>	
On some Important Principles of Comparative Grammar, as exemplified in Aboriginal American Languages,.....	144
<i>Rev. Prof. John Campbell, M.A., Montreal.</i>	
On Buckle's Theory of History,.....	345
<i>Francis Rye, Barrie.</i>	
Opportunity: A Poem (selected), ...	566
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Promotion of Culture, The.....	65
<i>The Editor.</i>	
Public Schools of England, The; I. and II.....	235, 307
<i>Thomas Hughes, M.P.</i>	
Primary School in China, The	284
Penmanship, and how it is best taught,.....	300
<i>R. E. Gallagher, Hamilton.</i>	
Progress of Education in England, The.....	423
Public School Department,.....	466, 530, 577, 632
Reading in our Schools,.....	282
<i>Jacques.</i>	
Recreation from an Educational Point of View,.....	425
<i>Geo. F. Romanes, M.A.</i>	
Recent Changes in the Mathematical Examinations in the University of Cambridge,.....	557
<i>I. Todhunter, M.A., F.R.S., Cambridge.</i>	
Some Thoughts on School Hygiene,.....	14
<i>T. W. Mills, M.A., M.D., Hamilton.</i>	
School Museums,.....	83
<i>David Boyle, Elora.</i>	

Spelling Reform,.....	134
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Study of History in Schools, The.....	214
<i>J. Henderson, M.A., St. Catharines.</i>	
School-Book Editing and Authorship,.....	226
<i>The Editor.</i>	
Stray Notes on Education,.....	434
<i>Clancahill.</i>	
Study of Physics in Secondary Schools, The.....	487
<i>Prof. Trowbridge.</i>	
Science Department,.....	334, 391, 458
Study of Literature, The, with its bearing on Composition	606
<i>G. A. Chase, B.A., Galt.</i>	
Science of Conduct: The, its Place in Education	613
<i>R. Wormell, D.Sc., M.A.</i>	
Table Talk.....	641
Training of First-Class Teachers, The.....	19
<i>Jno. Seath, B.A., St. Catharines.</i>	
Training and Training Institutions,.....	86
<i>J. H. Smith, Ancaster.</i>	
Two Sonnets on Science,.....	165
<i>F. R. Barrie.</i>	
Teacher's Work in the University and Public School, The.....	206
<i>Rev. President Nelles, D.D., Cobourg.</i>	
Two of the Conditions of a Teaching Profession,.....	498
<i>T. H. Rand, D. C. L., Fredericton.</i>	
Tact,.....	502
<i>Miss Riddell, Madoc.</i>	
Teachers' Associations,....	54, 114, 172, 243, 337, 395, 461, 528
University Consolidation, ...	1
<i>Alpha.</i>	
Unconscious Tuition,.....	265
<i>Rt. Rev. F. D. Huntington, D.D., New York.</i>	
University Questions in England,.....	541
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Virgil for the English Student,.....	211
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THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

JANUARY, 1879.

UNIVERSITY CONSOLIDATION.

BY ALPHA.

THE subject of University Consolidation has received considerable attention during the past year, both in Europe and America. The consideration of the question has been revived and brought prominently before the public of this Province by a paper read at the convention of the Education Society of Eastern Ontario, held at Kingston last July, by Mr. D.C. McHenry, M.A., Principal of the Cobourg Collegiate Institute. The topic was discussed, also, in the High School Section of the Ontario Teachers' Convention, last August. Resolutions were passed expressing the conviction that some suitable form of Consolidation is highly desirable. Steps were taken, moreover, to bring the subject more directly before the authorities of the several universities, with a view to the securing of the necessary legitimate action.

At present we give an outline of Mr. McHenry's paper, reserving for a subsequent number the consideration

of some of the more important features of the question.

The speaker in his introductory remarks referred to the difficulties surrounding this many-sided subject, and thought present discussion would be fruitless were it not highly probable that the question will soon again claim general attention; in which case the benefits of an interchange of opinion may be apparent.

The school system of Ontario is the pride of every Canadian patriot and the admiration of other lands; a University System, however fondly anticipated and long contended for in the past—is yet a dream of the future. In the chain of what ought to be our national system of education, there is a serious rupture at the point where we leave our Secondary Schools for the University. Up to this point all is consecutive and harmonious, but here the road diverges into many paths; uniform and systematic progress gives place to promiscuous

advancement, producing results as diverse as the curricula of the several institutions concerned.

The advocates of consolidation claim that, by a suitable scheme of confederation, our university system would be completed; all degrees granted would indicate equal rank of scholarship, and possess an appreciable value; government aid would be equitably distributed; unpleasant and unprofitable rivalries would give place to healthy emulation, sectarian bitterness to cordial co-operation for a common cause. He believed such a scheme both attainable and practicable, notwithstanding some expressions of doubt and indifference on the part of representative men, friends of Toronto University and of the outlying institutions. These indicate discouragement rather than actual hostility; or, perhaps they are no more than a kind of harmless coquetry on the one side and shy distrust on the other—the one party being really anxious to secure affiliated adherents, and the other waiting only for acceptable terms. If such hopeful views are reasonable, we cannot be charged with dealing in exploded theories, but should be credited with aiding in bringing into quiet waters and safe anchorage this vexed question, which, like a storm driven vessel, has been so many years floating on a sea of troubles.

I. What is the real design of a university, and what are its distinctive functions, in a comprehensive or national system of education?

(1.) The term may suggest that it is a school of universal learning including every department of literature, science, and art; providing for every legitimate profession; supplementing all other institutions in the land, and embracing the utmost limits of human knowledge. (2.) It may refer to the extended area of its influence. Reference was made to

the old European seats of learning, which attracted thousands of students. (3.) It may also suggest the idea of catholicity as a prominent feature of its character and operations—equal freedom and privileges being guaranteed to all duly-qualified applicants for admission. These general characteristics are certainly found in every flourishing university,—a liberal course, a general attendance, and a catholicity of tone pervading all its teachings.

The necessity for these organs of universal learning is never questioned in any civilized and progressive community. It is in harmony with the teachings of sound political economy that the state provide for all its people facilities for securing such an education as will fit them for their several duties as citizens. And, as a necessary result of the subdivision of labour, since there are more limited rounds of duty devolving upon certain classes—the learned professions—it follows that, until their services are dispensed with, ample provision should be made for specially qualifying them for their duties. This principle is recognized in every civilized country, and as nations progress in all that constitutes national greatness, the more extensive and complete is the provision made for establishing and maintaining the universities. How can this knowledge, so amply provided, be rendered accessible? Shall our university merely prescribe a course of study, the colleges to do all the teaching? Does the founding of a national university presuppose and assume affiliated colleges, or is it a function of the former to teach as well as to examine and confer degrees? While we select from European systems what we can profitably appropriate, we should reject all that will not assimilate with our national peculiarities. The systems of England,

France and Germany were examined in detail, the relation of their secondary schools to the university clearly traced, and the distinctive work of the latter compared with that in our universities. It was concluded that if we are to be guided by any such comparisons, the question as to whether our Provincial University should be a teaching body may best be settled by our first deciding whether we are prepared to adopt and maintain the advanced course of instruction of the German university where the teaching is taken up from the point when the student leaves the "gymnasium" and continued until he reaches the "Doctor's Degree"—corresponding to our *post-graduate course*. Until we can aspire to this position, a Provincial University can find no pretext for teaching, while at the head of a system of teaching colleges.

II. *Is such a Provincial system desirable in Ontario?*—Its superiority to our present "system" must first be shown—and in agreeing to a scheme, we must start from some common basis on which all can agree; the problem will never be solved by any exclusive method. Nothing but a want of liberality and breadth of view has hitherto obstructed the progress of this movement. All our leading legislators and educationists have felt the desirability of having one National University to which all the outlying colleges shall be affiliated. But the consummation of this design has been frustrated by side-issues raised in the discussion of details. Every sincere friend of superior education would favor that system which is best calculated to promote sound learning; one in every department characterized by thoroughness and adaptability to our requirements as a people; that system which provides a suitable education for every class; one that is equally acceptable

to all classes; and one that is above the reach of sectarian cavil and political intrigue.

The desirability of inaugurating a new system will be seen by considering some of the most prominent defects in the present arrangements.

(1.) The unnatural chasm between the so-called Provincial University and the rest of the system. No one will dispute the existence of this irregularity, nor attempt to justify the anomaly.

The secret of success in the primary and secondary grades of our school system is the prevailing unity and harmony of their operations. An unfortunate severance here occurs in the chain of our educational agencies. The "missing link" must be restored, and a consistent system secured, extending from the primary grade of the public school to the limits of a national university.

(2.) The natural result—the impossibility of securing a union of effort among university men, or a healthy emulation among the colleges. The system, (or the want of system), on the other hand, favors non-intercourse, creates exclusiveness, intensifies sectarianism, and gives rise to a kind of rivalry that has for its object, not the elevation of the standard of university education, but rather, in consequence of an impoverished and isolated "independence," the employment of questionable expedients to secure the greatest possible number of students.

(3.) An undue multiplication of degree-granting colleges. This results in diffusiveness of the curriculum, in superficial teaching, in degrading the standard, and lessening the value of college degrees. If these disastrous results do not appear in our colleges, their integrity has been maintained in spite of tendencies which almost inevitably lead to such degeneracy. A corresponding system among Ameri-

can universities has unquestionably proved unsatisfactory, so far as thorough and accurate scholarship is concerned. Within the last century no fewer than *five hundred and thirty-six* degree-conferring "colleges" have been established in the United States. Their most prominent educationists admit and deplore the results, and are moving in the matter of securing a national system.

In our Province we have seven such institutions—all but one "denominational." The last charter granted by our legislature was given, it is generally admitted, *as a matter of course*. Consequently, the easiest way to determine the probable increase of colleges in Ontario, is simply to ascertain *how many denominations are yet unrepresented by a university*. The position recently taken by our legislature is *dreadfully impartial*. It is to be hoped that it will be as willing to provide the necessary safeguards, and "make assurance doubly sure" by precautionary measures anticipating and favouring Consolidation. The wholesome restrictions of the latter would naturally check the undue multiplication of new colleges.

(4.) The uncertain value thus given to degrees may seriously interfere with general uniformity and efficiency in our High Schools and Collegiate Institutes. The Head Masters of these institutions are all equal in the eye of the law, whether young graduates of eighteen, or mature experienced graduates of thirty. The evil feared is somewhat checked by the regulation which requires a candidate for head-mastership to produce not only a degree in Arts from some British university, but also a certificate issued by the Minister of Education, showing that he has had experience in teaching; and, secondly, by the discriminating power of trustees. Nevertheless, both these safeguards may be neglected, and work made for future repen-

tance. Some safer guarantee is required, and this is best obtained by giving to University degrees in Ontario, not only a legal, but also a fixed minimum value. Our High Schools and Collegiate Institutes form an integral part of the system. As feeders of the Universities, they may be expected to give freely if in turn they receive freely. This interdependence is sometimes lost sight of by those who can be satisfied with anything less than the highest possible efficiency in our High Schools. The latter replenish the Freshman classes of the college; these soon become Seniors and return, many of them, to the High School to produce more Freshmen. The spring cannot rise above the fountain.

(5.) Under the present system the same individuals may be both professors, and examiners of their own students. They are thus exposed to censure and the suspicion of favouritism. A plan by which *numbers* not *names* should be adopted, and, at least, *associate* examiners appointed. "Why should college professors," it is sometimes asked, "unassociated with others, examine their own students, while High School Masters are prohibited even from being present during the Intermediate Examination?"

(6.) The magnificent endowment set apart by Government for the promotion of higher education is now given exclusively to one institution that is doing less than one-half the *bona-fide* university work of the country. One of two things is true: Either the colleges, other than University College, are *not* doing work recognizable as true university work, or there is an unjust appropriation of a generous and well-intended endowment. If the latter is true, the evil will soon correct itself. If, on the contrary, the colleges are not doing the work to be rewarded, the Government should be consistent, cancel their charters, and turn them into Collegi-

ate Institutes, when they would be justly dealt with under a system of "payment by results." The present exclusive scholarship system was justly condemned, and the manner in which consolidation would break up the monopoly was clearly shown.

(7.) The prevailing difficulties in connection with the *denominational* phase of the question. In a good scheme of consolidation these discordant elements would be harmonized; zeal for a particular sect will not be allowed to retard the progress of higher education; and the effete agitations of section and party will give place to calm and candid counsel.

III. *Scheme of Consolidation.*—Four general plans have been proposed for the solution of this problem: the first, "*affiliation*;" the second he termed "*absorption*;" the third, "*annihilation*;" and the fourth, "*consolidation*."

These Mr. McHenry illustrated as follows:—The *first*, to borrow a term from insurance, is a relation with limited and specified profits; the *second*, the surrender of all honors and profits for the benefit of the company; the *third*, a surrender of policy and profits, followed by death from starvation; and the *fourth*, a full participation in the profits, and a seat at the Board of Directors.

(1.) "*Affiliation*," as practically understood in Ontario, is regarded as a legal possibility rather than esteemed as a privilege. No sufficient tangible encouragement is offered the colleges. Affiliation, as contemplated by the Act of 1853, implied, at first, the distribution of \$35,000, afterwards of \$20,000 annually, to the outlying colleges. When the "surplus" failed, this latter sum was voted by the legislature for twelve years, when it was cut off at a stroke—a stroke, moreover, which seems to have cut the University adrift from the Colleges—

leaving her, however, in peaceful possession of the entire endowment. ✓

(2.) "*Absorption*" is the unconditional surrender of degree-conferring powers, and the sending of students to Toronto for all degrees, except those in Divinity. This he regarded as an unwise and unnecessary centralization,—a dangerous monopoly. ✓

(3.) "*Annihilation*," legislative interference in cancelling the charters of all denominational colleges, leaving the one at Toronto to do duty for the Province. The first is the least objectional; but all are unsuitable in a national university system.

(4.) "*Consolidation*."—By this term he understood "the opposite of the present system in many of its important features—an aggregation of its *dissecta membra*; a concentration of diffused and wasted energy; a blending of interests and feelings, instead of factions, opposition and petty rivalries. At present, the elements of our university system are floating about, as it were, in solution—incoherent, amorphous particles—with neither affiliation nor affinity. What is needed is the introduction of some power to collect these elements into a symmetrical solid, one grand compound crystal, if you please—isomorphous, beautiful, perfect. Do you fear that this crystal, while symmetrical as a newly formed snow-flake, may, of necessity, be as cold and lifeless as the icy mass with which it mingles? Do you regard an ice-bound, petrified, or cast-iron university system, the necessary result of consolidation? We are told that, accompanying the formation of certain crystals, *light* is produced. Perhaps, if we make one honest effort to emerge from our present isolation and darkness, light will be given at the moment when most needed; perhaps the removal of prejudice may be succeeded by the dawn of a brighter day—a light so bright

that it shall infuse intellectual life and added vigor into our new creation."

We condense the scheme proposed, giving merely the outline, which was fully elaborated.

(a.) The legislature should be induced to adopt such a scheme as shall utilize the outlying colleges. They cannot be ignored; they are increasing in number, resources, efficiency, and usefulness. No single university can do work for the country. The evils of such centralization would be obviated by consolidation, and the benefits of a system of centres enjoyed. The question of expense, a prevailing prejudice against city-life for the young, and a justifiable preference on the part of many parents for colleges where religious restraints and oversight are guaranteed, enter largely into popular opinion on the subject. Our legislators should accept the situation as actual and inevitable, and proceed to determine how these educational agencies can be turned to the best account.

(b.) *How can they be utilized?* Not to advantage in their present capacity. A partial reconstruction of Toronto University should first be effected. It should be an administrative, not a teaching body; its Senate representative in character, the government and each degree-granting college being duly represented. The general functions should include the arrangement of the curriculum for the colleges, the conducting of final examinations for degrees, the conferring of degrees and honours, and such duties as pertain to inspection, etc. The other Universities to hold in abeyance their degree granting power; the government, through an approved commission, to determine what equivalent should be given for the surrender of these important functions. All teaching to be done, for the present, at least, in University College and the other colleges holding university pow-

ers. The quality and amount of work done to be determined, primarily, by the final examination for degrees, and also by a certain amount of supervision of inspection. The amount of annual support to be received by any college to be in proportion to the number and rank of its graduates. The ordinary promotion of students from one year to another, in the course, to be left entirely with the colleges—the final test being sufficient. These final examinations to be conducted at the several institutions concerned, the presiding examiner being a member of the senate. The papers to be prepared under the direction of this central body, and the answers sent to them for examination. Then degrees, issued under authority of the senate, should be formally conferred by the Presidents of the several colleges, accompanied, if desirable, by some distinguished member of the senate.

Advantages of the system—(1). It would completely harmonize the educational system, from the lowest grade of the Public School to the University; (2) it would give a provincial character to all degrees and honours; (3) it would ensure a high standard of general and university education, without necessarily involving absolute uniformity in teaching; (4) it would afford the best means of testing the work done, and of stimulating our colleges in healthy competition; (5) it would secure the due recognition of specific service in the cause of education, and an equitable distribution of state support; (6) it would give increased facilities for the general diffusion of sound learning; (7) the plan proposed would secure these desirable results without in any way interfering with the distinctive theological work of any college.

IV. *Steps to be taken to promote a scheme of Consolidation—*Since To-

ronto University does not move in the matter, and the other institutions hesitate to take the initiative, though all admit the desirability and importance of some such step—let a joint committee be appointed, made up of representatives from the various Universities. This committee to mature a scheme to be submitted to the Legislature. It will then only remain for the government of the day to take up the question where it was left,

when, in 1869, the following resolution, moved by Mr. Blake, was passed almost unanimously: This House is prepared to give its best consideration to any scheme which may be laid before it for the improvement of superior education, and for the establishment and maintenance, through the Provincial University, of a uniform and elevated standard of education.

THE EFFECT OF EXAMINATIONS ON SCHOOL CULTURE.

BY A. PURSLOW, B.A., LL.B., HEAD MASTER, HIGH SCHOOL,
PORT HOPE.

NO one conversant with Canadian Educational Institutions and their system of instruction can, we think, read the observations of Dr. Wiese in his "German Letters on English Education," especially the letter on "Examinations in Universities and Schools," without feeling that many of his strictures on the system of examinations as pursued there, apply in equal, if not greater measure, to the system pursued here.

The writer, whose letters, by the way, bear evidence on every page, that he knows thoroughly what he is writing about, points out how, that for want of an administrative head with ability to devise, and with sufficient authority to enforce, a uniform and systematic plan of action in the working of the middle-class and great public schools of England, confusion of purpose, dissipation of teaching force, aimlessness of effort, and consequent inadequacy of result characterized the working of these schools till within a few years. That

then, because the local examinations conducted by the Universities of Oxford and Cambridge, the examinations conducted by the Society of Arts and by the College of Preceptors, since they supplied Masters with something definite to aim at in the preparation of their pupils, offered in some measure an escape from the previous chaotic state of things, a mania for examinations seized upon the teachers and people of England generally.

The writer referred to regards this mania as a reaction from the former confusion, but on that account none the less a mania. "From time to time," he says, "something like an alarm-bell sounds throughout the country, 'Come and be examined!' and they come, boys and girls, young and old, having crammed into themselves as much knowledge as they could." He quotes, also, the words of a young Hindoo, for some time his travelling companion, and who had been educated in the English

schools in Calcutta. This eastern student greatly disapproved of the system, and said, "In their schools pupils were only urged on by their English teachers to get ready for examinations; and that therefore they were obliged to stuff their memory with a mass of unconnected facts which were only half understood—a process in which it was impossible to cultivate independent thought."

Is not this picture too closely descriptive of the system which obtains in Canada, or rather in Ontario? It would appear that for the last five or six years the examination mania has taken tight hold of us. We, too, have come to attribute great virtue to examinations. That public school is spoken of as well conducted, and is held up as a model, if "wee things" in the first class are not promoted to the second, until they can pass an examination in subjects of class one. Class three is reached by an examination in subjects of class two, and so on all through the public school course of a child; while the door between the public and high school is only to be opened by passing successfully the "Entrance Examination." And what awaits him there? As promotions and final entry into the high school are the goal to which the aim of the public school pupil is constantly directed, so when once in the high school he enters upon a course of training having for its object his ability to pass the intermediate examination, and, perhaps, ultimately the matriculation examination of some university. And, be it remembered, that examinations for promotions are not the only ones he has to face: "good schools" have weekly examinations and most have monthly ones.

And when he leaves the high school for the university, what then? Being no longer a boy of an age

when one may fairly expect him to be imbued with a love of knowledge, surely he can confidently be trusted to pursue it for its own sake? Not at all. Examinations sterner still stare him in the face, and at every step. And not only so; at the university, even more than during his school career, it is thought necessary to goad his flagging zeal in the cause of knowledge by dangling before his eyes sundry honours, golden scholarships, medals, etc.

Thus from the outset to the close of his educational career—from the time when he enters the public school as an infant till he leaves the university as a graduate, he has the value of the ability to *pass examinations* dinned into his very soul. Surely with us, as in England, "the mania for examinations has been pushed to its furthest limits."

Now is this a healthy or desirable state of things? It must be acknowledged that it is neither. Those who uphold it, point with pride to the results—that the system makes in-ter-nants for the high school at ten or eleven; intermediates at thirteen or fourteen; and matriculants so young that the university will not admit them on the score of youth. And they ask by what other system could you accomplish results like these? With what other lever could you so move the mass of school-boy sluggishness and innate love of idleness? We allow that the means are admirably adapted to produce this result; that is, that the system is admirably adapted for making pupils work to store their heads with facts, and for making them able to pour out, on examination day, what the teacher has poured in. But do not those who point to their success in this confound instruction with education? They tell us life is a race; and that the competition which examinations afford is a good preparation for that

race. Granting that post-school life is a race, resulting, it may be, "in the survival of the fittest," is it desirable that that race should be begun so soon as a child emerges from infancy? Is it human of us that we should be less considerate of our boys and girls than owners of "studs" are of their race horses? These are allowed to reach full growth before being "entered." We, indeed, often enter our children for the race before infancy is passed, and goad them on in it by examination after examination all over the course.

We say "goad them on," for what is the spur which the system disposes a teacher to apply to the pupil whose industry or whose endurance is flagging? Does he work upon the love of knowing things so natural to children,—encourage them to climb the hill of knowledge for the boon of enjoying the ever widening landscape that opens before them as they ascend, and does he debate on the supreme pleasure which a well stored mind at all times yields to its possessor? Does he, with the older pupils, point out that the difference between man and the brute creation is the possession of an intellect—that a man with an uncultivated intellect is on a par with the brute, and that he becomes a real man and surpasses the brute just in proportion as he cultivates his mental powers? Does he even take the lower ground and point out the superior usefulness—the many advantages—that accrue to himself and to the community from a man's being educated?

Is it not true that for once that a teacher's remarks take a form like this, ninety-nine times they take the following:—"I know where you'll be in Friday's examination; at foot of the list!" "So sure as you work no harder you'll be plucked at the next intermediate and thereby disgrace

yourself and discredit the school." Is not the jaded university class warned that "honours and scholarships are not to be had for the asking?" And if this is the case, let us not blame the teacher but the system which sets so much value on the mere ability to pass examinations. We may be sure that so long as a head-master is led to measure his assistants' work, not by the intellectual culture imparted—the independent thought evoked, but by the number they periodically get ready for promotion;—so long as the work of that head-master himself is measured by the trustees, by the municipality, by the educational authorities, and by the country at large, not by the number of men and women of sterling worth and character he turns out, a credit to themselves and useful to the nation, but by the number he pulls through the matriculation or intermediate examination, so long will teachers be induced to appeal to this low motive in pupils, and what is worse, perhaps, so long will pupils be tempted to rate a teacher by his ability to "coach" than to pass examinations. But, as some one asks, is not "a system whereby the teachers of a country are converted into 'coaches,' by its very nature, hostile to the true conception of education?" and it cannot be gainsaid that it is. Many thoughtful educators in England have come to see that examinations are far from being the unmixed good they were once supposed to be. The following remark quoted by Dr. Wiese is significant of the change of opinion that has recently taken place:—"No school which converts itself into a coaching establishment is a place of education in the proper sense of the term. There is a repose, a calm, a stability in the steady march of all sound education, which is alien to the feverish spirit which animates

the ante-chamber of an examination room."

Let us now look for a moment at the result of this race for examinations. Any one who has followed us thus far is prepared to believe that, in this race for the prizes which are only to be won by passing examinations, education in any true sense of the word is almost entirely overlooked. It is to be feared that many of the young people into whose hands the bulk of the teaching of our common schools is entrusted have themselves no proper conception of *education* as distinguished from *instruction*. At best, their ideas of their calling rise no higher than the faithful discharge of the daily duty of "hearing" classes. And in this no blame attaches to them, for until the introduction of model schools they could only win the legal right to teach by passing the requisite examination in book subjects. The examination rush made education an impossibility in their own case, and they can only reproduce in their schools *mutatis mutandis*, the system which has produced them. If it is true that, till very lately, in the preparation of these young persons for their work, culture had no place, and since they cannot be expected to impart what they themselves have not obtained, it follows that it would be useless to look for much culture in our rural population.

That the low intellectual status of our native rustic population is directly traceable to the absence of education, properly so called, in our rural schools, no one can doubt. And here, we again disclaim making any charge against the teacher. We know that, youthful as many of them are, they discharge their duties most faithfully, according to the light they have. If they instruct much and yet educate little, the fault is not theirs; it rests with the system under

which they have been trained to set so much value upon the acquisition of mere book-facts.

Let us now turn and see how the case stands with high schools. We know that there are many of the older teachers of public schools in large villages and towns, and the vast majority of high-school masters and teachers who have as lofty conceptions of the nature of true education as any one can wish, and who feel keenly the degradation of their calling into mere "coaching" for examination. They wish to educate as well as to instruct; they wish to cultivate the mind and heart as well as to teach and fill the head; they wish to develop independent thought—to turn out men and women who can think and act for themselves and whose trained judgments shall be proof against sophisms of all kinds, whether propounded by politician or preacher;—they wish to send forth men and women with cultivated literary and artistic tastes; they wish to imbue their pupils with such a love for knowledge, *per se*, that they will, when school is left, seek their highest pleasure in continuing its pursuit.

But what time is there for this work, so important, it must be confessed, to the well-being of the individual and of the nation? What encouragement is there to enter upon it, since in its very nature it cannot be measured by a written examination? We think we can reply for high-school masters and teachers (especially since the establishment of intermediate examinations) by filing to both queries the answer—none or very little. So great is the abnormal pressure that has followed the introduction of the intermediate system into our high schools, that the desire to have a large number of successful intermediate candidates nearly swamps every other question.

The whole machinery of the school is arranged with a single eye to this purpose; every other consideration yields to it, and all work is valued by both teacher and pupil by its bearing on the intermediate examination. Masters find themselves scanning carefully the nature and extent of previous question-papers and arranging that so many subjects and so much of a subject shall be taught as will help a candidate "to pass the intermediate." And this is not because masters are unconscious that this sort of thing is not education; as we have said, very many of them feel keenly the degradation of having to turn themselves into "coaches" and "grinds." But it is because they find themselves obliged to yield to public opinion which has come to place a false estimate upon school work. By the way in which the results of intermediate examinations have been published, by self-laudatory notices of masters, in local papers, which sometimes contain an invidious and uncourteous comparison between the success of their schools and the non-success of other neighbouring ones, and by glaring advertisements of some Collegiate Institutes and high schools, now and then slightly colored to suit the public tastes, the public have been trained of late years to judge of the excellency of a high school by the intermediate pupils it passes. But, as Dr. Wiese remarks, with reference to the same evil in English schools, "the public in this case may be greatly deceived. We, in Germany, consider this very stimulus unsuited for the teachers as well as for the pupils, and we do not wish to see the quiet course of instruction disturbed in the manner in which it is done in England. We regard the school as too good a thing for such a purpose; it has higher aims than those of a 'racing stable' as some

one in England expressed himself in speaking of its schools."

We have stated our belief that in our Collegiate Institutes, high schools, and large public schools, there are masters who know well what education should be; but that the high pressure at which they have to drive the school machinery (particularly in high schools, in the manufacture of intermediate pupils) renders it next to impossible to pay any attention to it. Examinations being the criteria of success, teachers and pupils are led to set no value on that which does not qualify for passing them. Let us trace this result a little further, especially as it affects the after-life of high-school pupils, and see if we shall find anything more to congratulate ourselves upon than we did in the case of country pupils. We willingly concede that the introduction of intermediate examinations into our high-school system has given an immense impetus to high-school work—has vastly increased the amount of work "gone over," but we hold that the coaching and cramming, and the restless push to which it has given rise, leave no time for intellectual and æsthetic culture or for proper mental assimilation. Could teachers frequently give themselves the treat of "a talk" with their forms over some strikingly beautiful passage in literature, or object in art; or over some exhibition of noble and lofty conduct; or the treat of watching the look of extreme satisfaction and peculiar twinkle of eye which a boy's face manifests when light is dawning upon some knotty point because he has brought to bear upon it some piece of previously well assimilated information—has dovetailed apparently disjointed facts,—they might expect to turn out youths imbued with a love for ac-

quiring and for pursuing these beauties in literature and art for themselves when school life is over. But the every recurring intermediate forbids teachers this pleasure. Our young people leave school, glad at escaping the drudgery of preparing lessons. They look upon the acquisition of learning with no friendly eye: can we wonder then that they don't pursue it? If they read at all, what is it they read? The reports of the librarians of Mechanics' Institutes and of free and circulating libraries of all kinds, join in the one lament that works of History, Travel, Discovery, Science, all remain upon the shelves, and that scarcely anything is sought by young people but the inevitable novel! If attempts are made from time to time to get up clubs for debate and mutual improvement, after a brief existence, they collapse and prove a failure.

Young people of both sexes thus leave our high schools, not only with no love for intellectual pursuits, but in the majority of cases with a positive dislike to them. And this is not the whole of the mischief. The severe mental strain, and the deprivation of proper exercise and rest to which young people from thirteen to seventeen are subjected when preparing for the intermediate and other examinations, cannot be otherwise than injurious to body as well as to mind. This effect has frequently been pointed out and deplored by Head Masters in the Annual Convention, and numerous cases cited in which girls and young women who had every chance of success had fairly broken down just before and during the examination, unable any longer to bear up under the intense strain. Not unfrequently parents who have had one son or daughter go through it, positively refuse to subject another of their children to the ordeal. It would

be a digression from the subject, else we should like to show how entirely unsuited several of the subjects of this examination are for girls, and to urge a revisal of the programme, at least with regard to the amount and kind of mathematics exacted from them. But the following incident is not foreign to the purpose, since it exhibits another evil consequence of the system under consideration, viz.: the possibility of a young man being able to pass examination after examination, and yet be entirely wanting in all that constitutes an intelligent and well-read man. An undergraduate in one of the colleges in Toronto, in his third year, was spending the evening at the house of a friend of the writer, at the time the papers were giving the doings of Dean Stanley on this side the Atlantic, and the conversation turned upon that famous ecclesiastic. The undergraduate remarked that Dean Stanley was a great traveller. The host, who scented a joke, replied that he was aware that the Dean had accompanied the Prince of Wales in his tour in the East, but he didn't know that otherwise he deserved the name of a traveller. For his enlightenment the undergraduate remarked, "Why he has lately completed the journey across the continent of Africa." Since this occurrence the papers have reported this young man scholar and prizeman of his college!

But it may be said—"The whole tenor of your paper is destructive: to pull a system to pieces is far easier than to build up another in its place;" and it may be asked what have you of a constructive nature to suggest instead? It is but fair that before closing we should meet this question. Any one who has followed us and has interpreted our remarks as we desire to have them interpreted, will perceive that we have not written one word against the

usefulness of examinations in the work of instruction. We have conceded fully that a teacher possesses no more effective power for overcoming the inertia of youthful sluggishness than that of examinations, and no wise teacher will deprive himself of their assistance. It will be noticed that we have no complaint against examinations as a means to an end ; our charge against them is that they have been exalted out of the catalogue of means to that of end ; and that the ability to pass them has of late been made "the be-all and the end-all" of our educational efforts. What we want is to see them relegated to their proper place in the school economy, *i.e.*, used as tests to find out whether a form has correct, clear, and full ideas of what has been taught, in order, be it marked, that incorrect, confused, or inadequate ideas may be corrected ; used as aids in the practice of composition, because their tendency is to make youths put what they have to say as tersely and as tellingly as possible ; used as a means, if you will, of proving fitness for promotion, and entrance into High School, Upper School or University. As the teaching proceeds, we would have examinations kept entirely in the back-ground, and we would have the mind of the teacher perfectly

free from the notion that he is teaching for examination purposes, and we would have him combat to the death the notion in his pupils that they are learning for examination purposes. We would have all the information (having due regard however to its suitability) imparted and acquired as it is done now, but we would have teachers impart it and pupils encouraged to acquire it, not because it will be necessary in passing examinations, but because such acquisition is necessary to render them intelligent, thoughtful, cultivated, useful men and women. Let this be the object that teachers and pupils set before themselves, and then, that hurry, that drive, that over-exertion of mind and body, that ignoble aim, which is now so undesirable and so injurious a feature in the working of our schools (and since the introduction of Intermediate Examinations in the working of High Schools especially) will soon cease to exist. Then it will be no longer true that "in our days there is danger of schools becoming unfaithful to their duty as educational institutions, and of confining their function to the communication of knowledge and the cultivation of the intellect," forgetting that "the problem of education is to purify and strengthen the will."

WE live not in our moments or our years.—

The present we fling from us as the rind

Of some sweet future, which we after find

Better to taste, or bind that in with fears,

And water it beforehand with our tears—

Vain tears for that which never may arrive!

Meanwhile, the joy by which we ought to live,

Neglected or unheeded, disappears.

Wiser it were to welcome and make ours

Whate'er of good, though small, the present brings—

Kind greetings, sunshine, song of birds and flowers,

With a child's pure delight in little things ;

And of the griefs unborn to rest secure,

Knowing that mercy ever will endure.

—*Archbishop Trench.*

SOME THOUGHTS ON SCHOOL HYGIENE.

BY T. M. MILLS, M.A., M.D., C.M., RESIDENT PHYSICIAN OF THE CITY
HOSPITAL, HAMILTON.

THE subject of School Hygiene is a very wide one—it might be the subject of a large volume, or several of them. At present I shall not attempt to cover the whole ground or even any large part of it in a synoptical way, but confine my remarks to showing the relations of the subject to the general welfare of the pupil and the teacher; and insisting on a clear recognition of the main principles, with a few practical hints. Let us, however, first consider what health and disease really are.

Suppose the individual to be born with all the natural organs in a normal state—and to be placed in circumstances favourable to the full, free, and harmonious use and development of the same, then the sum total of the exercise of all his functions may be considered as health. From this view of the subject it must appear that an infinite diversity must exist among individuals as to the degree of health they can by their organization enjoy. There is, besides, that variation from each one's best state which one calls indisposition or, again, positive illness. But it must be clear that one man's best health would be relatively indisposition in the case of another. Now the practical bearing of this point at the outset is that some persons should never attempt to be either close students or engage in a profession so trying to the organization

as teaching—especially teaching in our day. Everything now seems to be pushed to extremes. Men in all walks of life race, and the consequence is their life's race is soon run. The day of octogenarians is fast passing away. We are ambitious without restraint and we must pay the penalty. The question now with educationists and school boards seems to be not how shall such and such subjects be best taught and learned, but how much can be shown to have been written, etc., at a certain examination, after the shortest possible training, by the youngest possible pupils who have been taught of necessity, not alone by the best methods (that may have been so or not), but by the most forcible or forcing methods. Now I intend to say here, and on any other occasion, as a medical man as well as an ex-teacher, that nothing will tend to injure the health in the present day so much as the extreme forcing system at present in vogue. It will at once be concluded that a much greater amount of work, and of a much better quality can be done by those who observe in and out of school the laws of a sound hygiene; but it must also be equally strongly stated that with the most perfect observance of these laws in all respects, save the one of moderation in exertion, the result may be disastrous. You may feed and house and groom

a healthy horse perfectly, and yet you may drive him to death. We hear various explanations of the greater longevity attained by our fathers, and a few in our day—but I venture to say that it was not because they lived on porridge or cracked wheat, and rose at four in the morning, and went to bed at twilight—but because they moderated their ambitions and so their exertions; while at the same time they were not flagrant violators of ordinary physiological laws. Let us consider what the relation of the various parts of the human economy are to each other, briefly, and then estimate how their harmony is liable to be disturbed in the case of pupil and teacher.

Every tissue of the body is composed of microscopic elements which have originated from cells. These minute portions of each part are constantly being destroyed and reproduced, and it is only when the forces of reproduction prevail over, or, at least, equal those of destruction that the organization can be said to be prosperous—to be in health. For this perfect result there are two great requisities.

(1.) An abundant and healthy blood supply. (2.) Healthful nerve influence. It is to be noted as a proven fact, that the latter is as essential as the former; that impressions of a mental kind can produce disorders of nutrition. Every one is aware that sudden grief may produce loss of appetite, vomiting, etc. But all do not appreciate the fact that our oft-repeated little troubles—our microscopic ills—may and do interfere with this process of nutrition, and so in time seriously injure the health by producing injurious nerve impressions, as has been explained—these originating in the main nerve centre, the brain. It follows, therefore, as the necessary corollary of this, that,

(1.) Those only may expect to enjoy the best health as teachers who love the work of itself, and have that steady feeling of contentment and positive pleasure that such a feeling brings.

(2.) Those are most favorably placed as regards health, who instead of looking at school-work as a monotony to be dragged through with, have the art of taking an interest, perhaps even a certain degree of amusement or pleasure, out of everything that crops up in each day's work. There is just so much monotony in school life as each teacher puts into it. This concerns the teacher; for as the master, so the servant. If he is sour, the pupils will be like the one they most naturally imitate.

And on the subject of monotony and the importance of a healthy nerve-influence, let me impress on all who follow me the value of beautiful and changing surroundings, not now from an æsthetic point of view, but from the more readily appreciated one of their influence upon the health. People speak of change of air and scene—that good follows we all know. Why? Because there are some new sort of thrills it would seem produced in the nervous system by the change of sight and sound, and all this is helped by change of diet, of air, etc. Everything wears out—loses its power; just so certain influences grow stale and need to be replaced. The nervous system requires new kinds of stimulants as much as the stomach new varieties of food, however good in itself that food may be.

From this, it would appear that a pretty school house, and handsome grounds especially, as they are perpetually changing—offering something new every day—are not matters of trivial but of great importance as regards health of pupils and teachers. Space will not permit me to expand this idea further; but has the

subject, I ask, received that attention, in the aspect now presented, it deserves?

The subject of healthy blood, also, demands attention. The matter is generally looked at in what seems to me to be a less scientific method. We hear much of bad ventilation, but this leads to pollution of the blood and acts in a variety of ways. Let us note first what we require from the air, and the quantity. The oxygen of the air is selected from the mixture of the two gases in the lungs, embodied in the red blood corpuscles, and thus carried to the tissues.

Now part of the effete matter of the system is given off from the lungs—in the form of minute broken down particles of ourselves—and our own tissues, carbonic di-oxide, is exhaled in about equal proportion with the air inhaled at the same time—vapour saturated with a kind of extract of our bodies passes off from both lungs and skin constantly. That from the skin, especially, is pregnant with injurious acid vapours; and unless the children may be cleanly—certain other injurious exhalations mingle with those that are necessarily present.

Now a school-room is perhaps the most awkward of all places in which to carry out the laws of physiology in regard to a due purification of the blood.

(1.) For every one is supposed to use his brain actively, and so require a large blood supply.

(2.) Those engaged in almost every other sphere, breathe freely, recklessly if you will—but in the school room there is enforced quiet. Hush! hush! And the chest must scarcely dare to expand. But they sing—they repeat aloud. Yes, both admirable—both essential to the development of the respiratory apparatus. Our singers never die of consumption, it might almost be said. But then it makes all the difference

what kind of air is breathed. If the air be vitiated by the unusual use of the vocal organs, additional air and so much more of the poisonous matter is pumped into the lungs.

We should like to insist just here on the value of a judicious use of the vocal organs, as in singing, for the health.

It is not essential to health that the lungs be filled to their fullest capacity all the time, but it is very desirable that they should often be filled two-thirds, and at least twice a day fully. All boys and girls should run. If it could be made fashionable for young ladies to continue the running of their girl-hood, it would be well for them and their posterity. A large heart—a deep pair of lungs. O what two fortunes in themselves! Happiness and health—vigorous health—have a closer relationship than has ever yet been fully recognized.

What then are the requirements for a full supply of oxygen? Says Huxley, "To be supplied with respiratory air in a fair state of purity, every man ought to have at least 800 cubic feet of space ($9 \times 9 \times 9 = 729$) to himself, and that space ought to be freely accessible, by direct or indirect channels to the atmosphere."

Uneasiness and headache arise when less than one per cent. of the oxygen of the air is replaced by other matters.

How to attain this result practically is a difficult problem. If school houses could be built large enough to have one room occupied only half the school session, so that it might be ventilated in the absence of the pupils while they pass from one room to another, again furnished with a completely fresh supply of air, the difficulty could be got over; but all means of ventilating while the inmates continue to remain in the room for six hours together, have, it is feared, partially failed in this respect.

We get ventilation, but we get colds—or the ventilation is good at one time and poor at another. Each teacher, however, who comprehends well what is aimed at, and who is observant and painstaking, will do much by the exercise of ingenuity and common sense. But close observation and the observance of system are essential—else the hard-working enthusiastic ones will forget all about this matter, and pull, as it were, against the current. A brief notice as to how vitiated air acts on the economy will be worthy of careful consideration.

(1.) The effete animal matters irritate the air passages, and may provoke bronchitis if other circumstances favor its onset. They may be absorbed again into the blood, and so poison it.

(2.) Carbonic di-oxide acts on the economy in large quantity like opium—is a stupifier—hence the unconsciousness that follows from strangulation. A limited quantity of this gas renders the subject who inhales it listless—dull to perceive—it acts on the nerves, irritating them. This, when extreme, may culminate in a convulsion as in the case of animals hanged, when, of course, all the carbonic di-oxide of the body is retained. Its minor effect is great restlessness and irritability. I beg to call especial attention to this latter effect, for it has led to not a little misconception and injustice.

It is an observation with which all teachers will agree that from three to four o'clock in the afternoon the management of a class is more difficult by far than at any other time of the day. Part of this difficulty is due to the weariness both teacher and pupils experience at that hour. But this is not all—perhaps not the greater factor in the case. The air has been growing more and more unfit for respiration

—yet it must be inhaled—the pupil is weary—his vital processes are being carried on with less vigour and correctness. His blood is getting impure—his nerves feel the effects—they are irritated by this blood loaded with poisonous matters that nature made a special provision to get rid of, but which society contrives to keep in—the nerves are irritated by it just as the tongue is by acids, and a general feeling of uneasiness ensues—general because the nerve distribution is universal. When your class is restless and you do not know what is the matter, lay aside the strap and let in fresh air.

The state of things referred to is aggravated by the irritability of the teacher. She exaggerates the conduct of her class because she is constantly annoyed from the same cause as that which is her source of worry as far as her pupils are concerned.

Now, however poor your arrangements for ventilation, this much can be done by anyone. At every recess, open all the windows—at noon time leave these open for a considerable time, stirring up the fire in winter if necessary—so that the pupils will always return, at least to rooms full of pure air. When you open the windows, if this be the only method at your disposal during the school recitations, if there be danger of some catching cold—let the class stand and go through some simple gymnastic exercises which by producing a more rapid blood-flow will obviate the danger from draughts, and will relieve and brighten up the little workers who soon get very fond of this. It is useless, it is against all physiological rule to insist that any young animals shall remain perfectly quiet and motionless for hours together—and those who enforce such quiet are acting the tyrant over nature and, unwillingly it may be, are

'cruel. Laws of life are before laws of education. "*Sana mens in sano corpore*"—but you cannot have the *sana mens* without first the *sanum corpus*—and insanity is by the most scientific of the present day now regarded not as a disease of the mind, but as the result of a disease of the body—of the brain chiefly. Nor by the observance of the above simple rules, will the teacher lose time. The law of change, or, as I will call it, the law of new nerve influences, must be observed by all who will succeed with the young. Is not this one great secret of the success of the Kindergarten system—the most philosophical, indeed the only philosophical system of education yet proposed, and which, if carried out all through our educational fabric to the end of the university career, would lead to results as yet not only not attained, but not dreamt of. Let me here, too, stop to put in a plea for troublesome boys—the ones who so often suffer castigation simply from nature's asserting her unchanging laws. The most troublesome, restless pupils are often the most talented. Did you ever notice that boys who make little progress with books, and are very inattentive in school, often show great practical talent; when you really test the extent to which they have observed in the outside world, know far more than your quiet and so-called studious ones. Their intellects refuse to be crammed—they wish legitimate knowledge got by contact with facts, not books.

They have vigorous bodies—they cannot tolerate the restraint of the school-room as it exists now—they want to use their hands as well as their heads, as all young workers should, and their restlessness is simply nature's rebellions against our somewhat unphilosophical methods—artificial methods.

I speak now the result of my repeated observation in a school of 400 pupils for two years, and on a smaller scale for many years. Do not, of course, suppose that I thus excuse all bad boys or all misconduct in school. But I can certainly say, that among the 400 that I just now referred to, the best of them, for any practical matter, was a boy whose restlessness was such that no teacher had ever succeeded in keeping him quiet. Those succeeded in getting the most work out of this boy who gave him the little business messages, etc., of the class to perform. Let us consider well before we strap such boys. Nature may avenge herself on us.

With a view to escaping this awful worry which acts on us like friction on machinery—first putting it out of order and then smashing it up—allow me to insist on the observance of system and order in school work. This is certainly one fine feature in our modern systems. I fear we even go to extremes in the classification of our pupils in the large cities—making divisions that look well on paper but which do not exist in nature, yet which the necessity of the case demand from the limited means with which we carry on the great work of education. People will pay less for education than they will for mere luxuries—for empty show, as good old Roger Ascham said in his day. Some do pay more for the training and breaking in of a colt than for the education of the minds of their sons.

The subject of pastimes, games, amusements, etc., in relation to health, beyond showing, as has been done, how they act physiologically on the principal of all the systems—the nervous—must be passed by at present, also the subject of muscular development, etc.—and, indeed, no systematic treatment of the subject

of school hygiene has been attempted—but an effort has been made merely to set forth clearly the two main principles to be observed for the

enjoyment of health in any sphere—and especially in some of their aspects which it seemed had not before been very strongly insisted upon.

THE TRAINING OF FIRST-CLASS TEACHERS.

BY J. SEATH, B.A., PRINCIPAL, COLLEGIATE INSTITUTE, ST. CATHARINES.

THE prominent feature of recent educational changes is the increased attention now paid to professional training. An effort is being made by means of County Model Schools to supply what used to be a serious defect in the preparatory course of Third-class Teachers, while the utilization of the Provincial High-schools for the education of Second-class Teachers in Literature and Science, and the altered character of Normal School work so far as this grade is concerned, mark an important era in the history of both classes of schools. No doubt there must be many modifications of the present scheme before the Model School system can be regarded as complete, but the first step has unquestionably been taken in the right direction. With the Second-class teacher, however, the case is different, and the public may fairly be congratulated on the success which has so far attended the existing arrangements. As is well known, the change in both cases was due to the disproportionate increase in numbers of the lowest grade, the almost uniform absence of systematic professional education on the part of a very large number of masters, and the impossibility, under the then existing regulations, of remedying these defects without burdening the Province with the expense of additional Normal Schools. It is not unlikely, either, that the general im-

provement of the High Schools, and the fact that in them, even before the passage of the last School Act, a good deal of the work of preparing teachers had already been done, brought out more clearly the impolicy of the course that had been pursued. The alteration of the work of the Normal Schools to the purely professional training of one grade of teachers, is specially important, for it is a departmental admission that this is their true function; and it naturally follows that the continuance of a literary and scientific course of study in these institutions is justifiable only on the ground that the other schools of the Province are not in a position to do for the First-class Teacher what they now do for the lower grade. If it be true that both the High and Public School systems, and the public interests generally, would be benefited by the restriction of the Normal School programme to the professional training of First as well as Second-class Teachers, it will not be easy to defend the present arrangements in reference to the former. With a caution that under the circumstances was necessary, the experiment of grafting on the High-school system what had been one of the Normal School functions, has been tried in the case of one grade of teachers. The object of this paper is to show that the time is fast approaching when

it will be wise policy and true economy to extend the operation of the new scheme to the highest grade as well. But first it will be proper to state the advantages that have accrued to education even from its present limited application:—

1. Another *raison d'être* has been conferred on our High Schools, which establishes a claim on public support that in many places is the strongest argument for municipal generosity. Their claims on other grounds are no doubt equally cogent, but this is one in which the case of an efficient school comes home to the most economical councillor. The almost general acquiescence in the clause of the last School Act, which throws on the counties more of the burden of the support of these institutions, shows that this, amongst other things, has secured for them a recognition which had been refused to them before.

(2.) The High and Public Schools have been brought more closely together—a more decided unification of our school system has been effected. The Public School Master of the future will have been the High School student, and we may look for the complete extinction of an antagonism which still lingers in some localities.

(3.) The High Schools themselves have been improved. Example is contagious, and the introduction of a class of earnest students cannot fail to have a good effect on the ordinary school-members. On the other hand, many a teacher by attending a High School is induced to set his face towards a University career, whose highest ambition might otherwise be a Public School teacher's certificate. And further, as the Science optional group is that generally selected by the candidate for a Second-class certificate, more attention is now paid to Natural Philosophy and Chemistry than was usual under former regulations. High School Masters who are

not willing to be left behind in the race are forced to maintain, in some degree of efficiency, regular classes in elementary Science, of which any pupil may avail himself as well as the teacher in training.

(4.) The separation of the professional from the non-professional training of Second-class teachers has in itself greatly improved both courses, for it has directed special attention to each; while, by devoting themselves solely to the former, the Normal Schools have found their proper work, and under the system pursued necessarily do it better than when the sympathies of both masters and students were divided. And further, the competition which has sprung up amongst High Schools for this class of students, however harassing it may be to the masters, cannot be regarded as prejudicial to the education of the Second-class teacher in Literature and Science.

(5.) An increasingly large number of trained Second-class teachers are yearly provided, the advantage of which will soon show itself in the general improvement of our Public Schools. Under the late regulations a teacher might obtain a Second-class certificate, as indeed the candidate for First-class is still able to do, without having received any professional education other than what he picked up in the school-room, or gleaned from his private reading. The present arrangement properly forces him to take a session at a Normal School.

Although the new scheme had been in operation for only a year, it was found necessary last September to refuse admission to the Normal Schools to about two hundred applicants for professional training as Second-class teachers, many of whom have been from this cause thrown out of employment, or are now teaching by special permission of the Department on extended Thirds. If this state of matters

were to be regarded as merely temporary, the necessity for a change of some kind would be less obvious, but the capacity of the Normal Schools is limited, and under existing arrangements they are unable to send out more than three hundred and sixty Second-class teachers a year. There certainly is one way in which the authorities can put an effectual check on the production of holders of non-professional certificates—by increasing the severity of the examination; but this is a remedy that for some time to come would be both impolitic and unjust. To a gradual rise of the standard within limits there can be no objection, provided it keep pace with, and be not in advance of, the progress of education. The *per saltum* principle, however praiseworthy it may be in the arrangement of some matters, is indefensible when it affects the complex machinery of our schools; nor is one bound to admire the eccentric orbits of the examinations of July and December, 1877. There can be little doubt that unless this expedient be resorted to, the number of applicants for admission to the Normal Schools will steadily increase instead of diminishing. All the efforts of the Department have been directed to this end, and this question, though it may be shelved for a time, will soon be up for settlement. Such a result is not only desirable but desired. Another Normal School would, of course, afford a ready but expensive solution of the difficulty. It may, however, be possible to utilize for some time yet the existing machinery without greatly increasing the cost of an already costly system, by restricting to their proper functions the Normal Schools we have, and, while providing in the High Schools for the requirements of First-class teachers in Literature and Science, to advance the general interests of education.

It is important to consider the fol-

lowing in connection with this question:—(1.) A teacher who holds a Second-class certificate, and has taught for at least two years, may obtain on examination a First-class of any grade, having obtained his education by private study or by attending a school. In other words, the First-class teacher is in the same position as the Second-class teacher was before July, 1877. The regulations do not recognize the absolute necessity of further systematic professional education; and, though these are the men from whose ranks the future Model School Masters and Public School Inspectors are to be drafted, the elementary training they obtain in a few weeks at Toronto or Ottawa, when qualifying for a second, is regarded as enough for the efficient discharge of the duties of these important offices.

(2.) Even at the Normal Schools which now claim to train First-class Teachers in both the professional and non-professional subjects of the course, the former are in a great measure subordinated to the latter. The following analysis of the time-table now in operation in the Toronto Institution will show to what extent this is true: the table shows the number of hours devoted to each subject every week:—

Eloction 2	hrs	Calisthenics $\frac{1}{2}$	hr.
Literature 2	"	Botany 1	"
Physics 1	"	Geography $\frac{3}{4}$	"
Algebra 2	"	Drawing $\frac{3}{4}$	"
Nat. Philos'y $1\frac{3}{4}$	"	Drill $\frac{3}{4}$	"
Book-keeping $\frac{1}{2}$	"	Physiology $\frac{3}{4}$	"
Arithmetic $1\frac{3}{4}$	"	Religious In. $\frac{3}{4}$	"
Grammar 2	"	Atten'ce, Model	
Euclid 2	"	School 1	"
Chemistry 2	"	Teaching in	
Writ. Examina-		Model School $\frac{1}{2}$	"
tions $1\frac{1}{2}$	"	Education or	
Music 1	"	Eloction 1	"

It is evident, therefore, that the work done in this Department of the Normal Schools is to a great extent that of the English course of the fourth and fifth forms of our High Schools, and that though theoretically

the professional and non-professional training in some branches might be concurrent, the anxiety of the students to pass an examination in which the distinctively professional subjects are conspicuous for their unimportance, and the natural anxiety of the Masters to fit them for the ordeal, can have but one effect on this course of study. It is also noteworthy that fully one-half of the time of the members of the Normal School staff is spent on the class in training for first-class certificates.

(3.) The attendance of candidates for First-class certificates is generally very small. Towards the close of last session, the number at Toronto was reduced to about a dozen, and the Ottawa staff had to concentrate their energies on a solitary student. If there were no other mode of providing for the requirements of this class of teachers, the end would justify the means; but, when the same work is being done elsewhere at far less cost, the maintenance of the present system involves unnecessary expense and a loss of educational power.

(4.) The English and Science departments of the Upper School programme of our High Schools is identical with the course of study prescribed for First-class teachers, if we except what must in courtesy be called the professional subjects in the latter.

(5.) Some of the High Schools now undertake to train candidates for First-class certificates, but necessarily at a disadvantage, owing to the admixture with Literature and Science of other subjects, for instruction in which the Normal Schools have, as matters stand, special facilities, and to the absence of any inducement to render this department efficient.

It will be seen, then, that the two classes of schools are now related to the question of the training of First-class teachers, in precisely the same way as they were to that of Second-

class teachers before the inauguration of the present scheme. Both High and Normal Schools now undertake the First-class course, and from the nature of the case the professional subjects are practically treated as of comparatively little importance.

The writer believes that, if the professional and non-professional courses were separated for First as well as for Second-class teachers, the former being relegated wholly to the Normal Schools, and the latter to the High Schools, the change would be beneficial to general education, and at the same time more fully meet the special requirements of the profession. The acceptance of the principle in the case of Second-class teachers is an admission of its correctness, while the marked success that has attended the experiment justifies the further extension of the system. The advantages which have been claimed as resulting from the present limited utilization of our High Schools would be increased; the High Schools would become more popular; the school system would be rendered more symmetrical, and each class of schools would have a well-defined place and well-defined duties in the scheme of public instruction. The Normal Schools, in particular, would thus be enabled to devote themselves wholly to their proper duties; the professional training of teachers, if properly carried out, would become an integral part of a well-ordered course; and important branches of study which are now omitted might receive the attention they deserve. Foremost among these may be placed Psychology. Although the elements of this Science, and of the Philosophy of Education, should be known to every teacher, it is chiefly to the Model School Master and the Public School Inspector that the Province must look for the dissemination of correct notions on such subjects, not necessarily in the form of set lectures, but as occa-

sion may offer in the discharge of duties which offer special facilities for the task. Year after year it has been a ground of complaint at Teachers' Conventions that so little value has been attached to professional education at the provincial examinations for First-class certificates, and the teachers themselves have tried to impress upon the department the necessity for a change. The separation of the two courses of study would give a prominence to each which is unattainable under existing arrangements, and the wish of those who for other reasons ask for a division of the subjects might be easily and advantageously complied with. It is not likely, either, that the education of such students in Literature and Science would suffer in schools that have become the mainstay of the Provincial University. But the utilization of the High Schools for the non-professional training of First-class teachers would confer additional benefits on both classes of schools. The discontinuance of the literary and scientific courses in the Normal Schools would relieve the masters of duties which now occupy a large portion of their time. For years to come one session of a few months would be sufficient for the professional training of students desiring the full rank of First-class teachers, and the rest of the masters' time would be available for the instruction of another division of candidates for Second-class certificates. Instead of admitting one hundred and twenty each session as they now do, the Normal Schools would in this way be able to accommodate twice that number for two of the three sessions in the year. Certainly one Model School of the dimensions of the Toronto one, might prove insufficient, but the example of Ottawa could be easily and inexpensively followed. There are, no doubt, difficulties of detail, but from a teacher's standpoint they do

not seem insurmountable. So far as the High Schools are concerned, the advantages of a change would be marked. At the Teachers' Convention in Toronto, in August, 1877, it was the unanimous opinion of the High School Section that the introduction of the Intermediate, and the absence of a University Matriculation Examination in Science, were dwarfing to the elementary requirements of the former examination in the study of Natural Philosophy and Chemistry in the schools of the Province. The ordinary Matriculation Examinations, and the recently introduced Local Examinations for Women, develop one side of the High School programme; whereas, except in the few schools where the work of First-class teachers is now attempted, instruction in Natural Philosophy and Chemistry generally ceases at the Intermediate line. This is certainly to be deplored. The principle of controlling educational work by examinations has been inaugurated, and it is only reasonable to expect that undue attraction in one direction will produce an unsymmetrical result. The introduction of candidates for the highest grade of certificate amongst ordinary students who have taken for their Intermediate the Science group, would at once develop this department of Upper School work, and the present lop-sided course would become *totus, teres, atque rotundus*. The study of Natural Philosophy, Chemistry, Physiology and Botany—those important subjects of modern education—would in this way receive in our best schools increased attention, and all classes would in time participate in the advantages of the change. The preparation of Honor Matriculants is not confined to a few schools; neither would that of candidates for First-class non-professional certificates. No change would be required in the High School course of study, and no additional

classes in most, except for those subjects enumerated above, which now have little value from an examinational point of view. Every master who prepares candidates for the Intermediate knows how easy it is in many cases to induce the young High School entrant—who aims at a Third-class Certificate—to aspire to a Second-class non-professional, before proceeding to teach on the former. And under the arrangement suggested, the holder of a Second A. non-professional Certificate would often need little persuasion to remain at school until he had obtained a still higher grade. So that one effect of High-school influence would be to supply our Public Schools with many holders of Second-class Professional Certificates who had already obtained a First-

class non-professional. We may in time have too many Second-class teachers; we cannot have too many of the highest grade. The general interests of education would also be benefited. As matters stand, the University Examinations—Matriculation and Local—provide “Leaving examinations” for students of Classics, Mathematics, Modern Languages and English; the non-professional First would become the “Terminal” for the student whose means and opportunities might not allow him to take a University course. No new examination would need to be invented to harrass the unfortunate victim of educational experiments. This one would wear a familiar face, and be robbed of half its terrors for both master and student.

FIRST PRINCIPLES OF EDUCATION.*

BY A. W. GUNDRY, TORONTO.

THERE is scarcely any subject of human interest which has not been submitted during the present century to a more rigorous process of overhauling and reform than at any previous period. Our age has been, so far, at any rate, one of universal, merciless, and radical criticism of old theories, old customs, and old beliefs. To very many it has seemed that the spirit of the day was purely destructive and iconoclastic; and not a few worthy people consider it absolutely retrogressive, and sigh for the more “settled” times of long, long ago. But they may safely be said to be in a minority now; and the firm conviction

of mankind in general, and of all but a small and eccentric school of the deeper thinkers, is that we have taken vast strides in advance of our fathers, and that our age is one not only of transition and upheaval, but of astounding progress. Moreover, signs are not wanting that we are beginning to emerge from the intermediate stage of criticism, analysis, and destruction, into that of reorganization and synthesis; beginning to build afresh upon the *dissecta membra* of the old errors we have overthrown.

Turning to Education, we find that its condition has been no more stationary than that of any other matter

* EDUCATION: INTELLECTUAL, MORAL AND PHYSICAL, by Herbert Spencer, New York: D. Appleton & Co., 1871.

of vital and far-reaching importance. It has, in truth, been the subject of more attention, of more discussion, and of more controversy, than almost anything else, if we except religion. Fifty years ago there was, speaking broadly, but one system of education ; that system which over-fed and over-exercised the mind, and under-fed and under-exercised the body ; which translated *educio*, "I cram in facts," not "I draw out faculties ;" which tasked the memory and snubbed the reason ; which considered mythological fables and correct scanning more important than scientific truths and correct living. To-day there is nearly as much dissent from this old academical orthodoxy as from the old ecclesiastical orthodoxy. On every side we hear of "some new thing" in education ; some fresh theory, some sanguine suggestion. We have watched the battle of Classical *versus* Mathematical subside into occasional local light-skirmishing, and have seen it followed by the advance of natural science upon the strongholds of literary and metaphysical culture. We long ago decided against the hot-house mental forcing system, and wrote up as our motto, *mens sana in corpore sano* ; it being a question, in England at any rate, whether the reaction has not gone too far in favor of the body. Corporal punishment has been frowned down to a mere gentle reminder of what it once was ; and the "tunding" case at Winchester raised, at the time of its occurrence, an energetic discussion of the wisdom of the monitorial and self-governing system among public-school boys. These, together with the numberless other controversies and changes, at which we cannot now even glance, indicate, without doubt, a state of healthy and promising activity ; and from out the clash of conflicting theories and systems much good has been and will yet be evolved. This stage of zealous

enquiry and suggestion, although it may, superficially, present an appearance of some confusion, is a great step in advance of the uniformity of stagnation which preceded it. But it is an advance only when considered as a transition stage to another and ultimate uniformity, that of demonstrated and established principles. It is as a means, not as an end, that all this dissent and controversy are valuable ; and if they were to lead to nothing definite and settled, they would be the symptoms of a feverish unrest than which even a stationary conservatism would be less hopeless.

Therefore it is well to enquire whether, in all our reforms and among all the changes of late years, we have been indeed advancing, or whether we have been working at random. Have our improvements been made on the patchwork and cobbling system, or have they been carried along the lines of first principles in the endeavor to approximate to a definite ideal ? Have we any clear conception of the ends in view ? In short, have we settled the one question which underlies and embraces all the rest, whether our educational system is to be empirical or scientific—scientific, that is, not merely in subject-matter, but in its methods and aims ?

There is, happily, no doubt that we have not merely patched up the outworn errors of a false system, but have made real and material progress, based upon a general conception of the necessity of adhering to first principles ; although there has been a somewhat limited and vague recognition of the actual nature of those principles. Education, perhaps, more than most other subjects, has felt the great scientific influences of the day, and has been pressed forward by them. It has received direct impressions from the liberal educationists whom these influences have produced, and who have done valuable work

in branches of the system. But they have been, as specialists, too near to its details to view it as a whole, and to make their improvements symmetrically and harmoniously with one great and consistent plan,—or even to gain, unaided, a full conception of such a plan. Fortunately, however, they have not been obliged to interrupt their more practical and immediately useful labours to elaborate one; nor to allow it to evolve itself slowly from the accumulation of experience. Eighteen years ago there was brought to bear on the subject of education an intellect which has seldom, if ever, been equalled for its powers of analysis and organization, cultivated by years of profound speculation, and possessing such an enormous range of positive knowledge, as together fitted it pre-eminently to take a broad, comprehensive, and accurate view of any question, and especially of this. Especially, we say, because Mr. Herbert Spencer, to whom we refer, had even then a firm grasp upon that great principle of evolution underlying universal progress which, dimly perceived before, has been brought so near to conclusive demonstration by him, and the application of which to the problems of education was no less successful in throwing invaluable light upon them, than it has been in clearing up the difficulties of the many other and profounder subjects to which it has since been tried as a key. Mr. Spencer wrote a series of four articles on Education in the *Westminster, North British and British Quarterly Reviews*; and these were in 1860 published by the Messrs. Appleton, in one volume, the title of which we have already quoted.* This work has therefore been before the public and in the hands of many educationists for more than eighteen

years, and it is certain that its influence has been strongly and widely felt. In proof of this fact, if proof be needed, there has been the frequent testimony of practical educationists in different parts of the world to the actual trial by them of Mr. Spencer's methods, and of the successful and encouraging results. This is the sort of evidence which cannot be gainsaid; and to which we refer all who are sceptical, in preference to laying even a fair stress upon the praise which the press has given the book.*

Some apology may be deemed needful for assuming to draw attention at this late date to a work so well known and so widely appreciated. But, even if we had not considerable doubt whether it has been much read in Canada, we should still think it by no means amiss in the initial number of a magazine of the present character, to recur, to the first principles of education, and to insist upon the importance of mastering them suffi-

* The *Popular Science Monthly* for November last, says of the work: "Its chief value is in pointing out the way to essentially improved methods of study. This is strikingly shown by the fact that the book has been translated into the different languages of Europe, in nearly all cases either *by or at the instance of men who have been officially engaged in the work of forming and carrying out systems of public education.*" The author of "Twenty Years' Residence Among the People of Turkey" says that she visited a "Greek school at Salonica, which was under the direction of a Greek gentleman educated in Germany, who has designed a new educational system, which, having had a fair trial, will eventually be adopted in all the educational establishments of the Greeks. . . . Of all the schools I have visited here, and elsewhere, this certainly struck me as being the best and most perfect of its kind." The director explained to her that he had combined the routine of work "partly from the system he had studied in Germany, and partly from ideas suggested to him by reading the philosophical works of Herbert Spencer, for which he appeared to have a great admiration." We select this as a recent instance from among many others, which space will not allow of our citing.

* A cheap edition is now published, or is about to be published in England.

ently to carry on all the work of detail in accordance with them and not in violation of them. We will therefore proceed to outline very briefly some portions of Mr. Spencer's work; trusting that those who have read it will not resent our refreshing their memory, and that those who are unacquainted with it, will not be satisfied with our summary, but will turn to the work itself.

Setting out with the fundamental question, "What knowledge is of most worth?" Mr. Spencer in his first chapter demonstrates conclusively that the answer must be—Science. He shows that it is one of the laws of progress that the ornamental precedes the useful, in point of time; the savage tattooing his body brilliantly before he thinks of the desirability of clothing it. Up to the time at which Mr. Spencer wrote, at any rate, our education had been in the lower and analogous condition, aiming at mere mental adornment, and seeking rather to give the means of making an imposing display than to subserve any really useful end. To rise above this condition we needed some standard by which to test, not merely the individual value of each branch of knowledge, but the relative values of all the various branches; by which means we might hope to answer the vast question with which we set out. This measure of value is to be found in the bearing of each branch of knowledge on life and conduct. The function of true education, Mr. Spencer maintains, is to prepare a man to live a complete life;—to discharge to the full extent of his faculties, his duties to his own body and mind and business, to his family, to society; and to be capable of duly enjoying all those sources of happiness which Nature supplies. Therefore each branch of knowledge will be valuable in proportion as it subserves this function. Proceeding to apply this test, Mr.

Spencer brings the problem into manageable shape by classifying the various kinds of activity which make up human life in the true order of their subordination; giving the place of prior importance to each division, which is a condition precedent to the existence of the next. He arranges them, therefore, as follows:—"1. Those activities which directly minister to self-preservation; 2. Those activities which, by securing the necessities of life, indirectly minister to self-preservation; 3. Those activities which have for their end the rearing and discipline of offspring; 4. Those activities which are involved in the maintenance of proper social and political relations; 5. Those miscellaneous activities which make up the leisure part of life, devoted to the gratification of the tastes and feelings." Taking these divisions in turn, Mr. Spencer ascertains what knowledge is of most worth in its bearing upon each, and finds that in every one of them scientific knowledge is the *desideratum*. We will briefly indicate how this conclusion is reached in each case.

1. "Happily, that all-important part of education which goes to secure direct self-preservation, is in great part already provided for" by Nature. During infancy there is protection in the instinct of self-preservation; and subsequently the child acquires, by the rough but benevolent discipline of experience, a knowledge of how to control its movements and avoid small dangers. Our duty is merely to see that Nature is not thwarted by unwise repression of that spontaneous activity, the indulgence in which gives a child this salutary experience. But this alone does not complete the education required for direct self-preservation. The body has to be guarded not only against merely mechanical damage, but also against the disease and death which must follow breaches of physi-

ologic law. Nature, indeed, has given us, in our sensations and desires, guides which are trustworthy as long as they are not vitiated by abuse; but their authority is not commonly even recognized, and consequently some knowledge of the elements of physiology is of the deepest importance. By ignorant violation of its simplest laws men are daily impairing their faculties, wasting their energies, and making terrible deductions from the usefulness, happiness, and length of their lives.

2. In the second division, embracing those activities which, by securing the necessities of life, indirectly minister to self-preservation, scientific knowledge of some kind is absolutely essential. The great majority of men "are employed in the production, preparation, and distribution of commodities." Efficiency in those employments "depends on the use of methods fitted to the respective natures of these commodities; it depends on an adequate knowledge of their physical, chemical, or vital properties, as the case may be; that is, it depends on Science." Our author then exhibits the inseparable connection of the various sciences with all the industries by which men gain their living; the necessity of scientific guidance in the investment of capital, and in the prosecution of large joint-stock undertakings, and the fact that, as competition makes productive processes more scientific, as it must do, an ignorance of science will become more and more ruinous. "That which our school courses leave almost entirely out, we thus find to be that which most nearly concerns the business of life. All our industries would cease, were it not for that information which men begin to acquire as they best may after their education is said to be finished. . . . The vital knowledge—that by which we have grown as a nation to what we are, and which

now underlies our whole existence, is a knowledge that has got itself taught in nooks and corners; while the ordained agencies for teaching have been mumbling little else but dead formulas."

3. For the third great division of human activities—"those which have for their end the rearing and discipline of offspring"—it is an astounding fact that no preparation whatever is made. To fit a man to be a carpenter, he is required to undergo some training; to fit him to be a parent, none is thought necessary. The responsibilities of parenthood are assumed by thousands in utter ignorance of the most elementary laws of physiology, and thousands of young lives are in consequence sacrificed or blighted. The young lady who at school has been drilled by learning names, words, and dates, and whose self-culture has been one of piano-playing and novel-reading, becomes a wife and a mother. "And now see her with an unfolding human character committed to her charge—see her profoundly ignorant of the phenomena with which she has to deal, undertaking to do that which can be done but imperfectly even with the aid of the profoundest knowledge. She knows nothing about the nature of the emotions, their order of evolution, their functions, or where use ends and abuse begins. . . . Ignorant as she is of that with which she has to deal, she is equally ignorant of the effects that will be produced on it by this or that treatment. What can be more inevitable than the disastrous results we see hourly arising?" Without a glimmering of the first principles of psychology, or of mental evolution, parents go as far astray in dealing with the child's intellectual, as with its physical and moral development. Here too, then, some general but accurate knowledge of physiology, of psychology, in short, of Science, is supremely important.

4. We come next to "those activities which are involved in the maintenance of proper social and political relations,"—to the functions of the citizen. The need of knowledge to fit a man for these functions is not, as in the last case, utterly ignored, such a study as history bearing, nominally at any rate, upon political and social duties. But, as taught, it is valueless for purposes of guidance. It is a catalogue of names, dates, battles, plots, and intrigues; a mass of facts "from which no conclusions can be drawn—*unorganizable* facts; and therefore facts which can be of no service in establishing principles of conduct, which is the chief use of facts." To be of practical value, history should "help us to understand how a nation has grown and organized itself." It must become a descriptive sociology, and furnish materials for a comparative sociology. But in any case historical knowledge, to be really serviceable, requires a key. "And the key is to be found only in Science. Without an acquaintance with the general truths of biology and psychology, rational interpretation of social phenomena is impossible."

5. The last division of human life is that which includes its relaxations and pleasures, "the enjoyments of Nature, of Literature, and of the Fine Arts." Here again, however surprising the statement may appear, the knowledge which is most requisite is that of Science. It underlies all the arts. The sculptor must know something of anatomy; the painter will blunder whose method is not based on science; the musician and the poet, even, cannot reach perfection without it. "Only when Genius is married to Science can the highest results be produced." In a very beautiful passage, too long for quotation, Mr. Spencer next reminds us that Science is itself poetic, "and opens up realms of poetry, where to the unscientific all is a blank."

Having thus far considered the value of different kinds of knowledge for purposes of *guidance*, he next proceeds to estimate them as they fulfil the object of *discipline*; and finds that the study of language, so prominent in our school courses, is far inferior in this respect to that of Science. The latter gives the better training to the memory, and at the same time exercises the understanding; and it cultivates the judgment as no extent of linguistic acquirement could do. Science affords also the best moral discipline, developing a spirit of self-reliance, of perseverance, and of complete sincerity. Lastly, Mr. Spencer boldly declares "that the discipline of science is superior to that of our ordinary education, because of the *religious* culture that it gives," and no one can read the eloquent sentences by which he follows this assertion without concurring with them.

"Thus to the question with which we set out—what knowledge is of most worth?—the uniform reply is—Science. This is the verdict on all the counts. For direct self-preservation, or the maintenance of life and health, the all-important knowledge is—Science. For that indirect self-preservation which we call gaining a livelihood, the knowledge of greatest value is—Science. For the due discharge of parental functions, the proper guidance is to be found only in—Science. For that interpretation of national life, past and present, without which the citizen cannot rightly regulate his conduct, the indispensable key is—Science. Alike for the most perfect production and highest enjoyment of art in all its forms, the needful preparation is still—Science. And for purposes of discipline—intellectual, moral, religious—the most efficient study is, once more—Science. . . . And yet the knowledge which is of such transcendent value is that which, in our age of boasted education, receives

the least attention. While this which we call civilization could never have arisen had it not been for science; science forms scarcely an appreciable element in what men consider civilized training." Science is the Cinderella of knowledges; doing all the work, ministering to her gaudier sisters; and long kept unrecognized in the background. But "we are fast coming to the *denouement*, when the positions will be changed; and while these haughty sisters sink into merited neglect, Science, proclaimed as highest

alike in worth and beauty, will reign supreme."

In the subsequent chapters, on Intellectual, Moral, and Physical Education, Mr. Spencer works out the general principles of a method of training which he bases upon the demonstration of the truth that the best course is to follow and help forward that process of evolution in the individual, which is a repetition in brief of the evolution of the race. With these chapters we hope to deal in another paper.

NATURAL SCIENCE IN PUBLIC SCHOOLS.

BY AN AMATEUR BIOLOGIST.

OURSELVES the work of nature, and surrounded as we are by specimens of the Great Artificer's handicraft, it is somewhat strange that the claims of Natural Science, as a study for the young, have been so persistently fought against, and so successfully driven off the field, covered by public school programmes. From an every-day practical point of view, one would be almost forced to the conclusion that the study of common natural objects ought first to occupy the attention of a child. The fly on the window-pane, the "cricket on the hearth," the toad in the garden, "good dog, Pomp," Tabby, the cat, and many other creatures are quite familiar by sight to every one—but the idea of devoting a little bit of school-time to a talk about such things seems to most people the height of absurdity. The examination of a mullein, or a burr, a bat's wing, or a duck's foot, would be regarded in much the same way; and a perfect

feeling of unanimity seems to prevail that although some knowledge of the human body is a very good thing, it is a doctor's business—not the teacher's.

It is quite true that until somewhat recently, books on natural science were far, indeed, from presenting the student with so many attractions as they now do. Much of what might otherwise prove interesting, was disguised by technicalities, and big-sounding dictionary words; and whilst to a certain extent the use of such terms in scientific treatises must always exist, their repulsiveness will wholly disappear, as the learner acquires, bit by bit, a knowledge of their meaning and application.

But books on natural science in a public school are quite out of place. The teacher may consult these at home, but in school he must do all the talking himself, except in so far as he can "draw out" his interested pupils. Probably it is just here that

the true reason lies in the teacher's being afraid to take hold of a subject, such as the one now advocated. They either acknowledge that they don't see anything to talk about in a handful of earth, a piece of stone, a common bird, a "bumble-bee," or a "polly-wog," or else they confess they "care for none of these things," or, caring for them, don't know what to say. Now, it can readily be shown that each of these objections is groundless. Let any number of persons—they need not be teachers—have an opportunity of visiting a menagerie, a museum, or a botanic garden, how many will pass by on the other side? Perhaps, not one. Should any do so, however, or should any feel that with the opportunity, he would do so, then it is not going too far to say, that, accepting the position of teacher that person has sadly mistaken his calling.

That curiosity which prompts us all to see "sights," is one of the principal motives actuating the scientist in his investigations. A close examination of the commonest object reveals to him beauties undreamed of by the cursory observer, and it is just because we are all too apt to be mere cursory observers that the study of natural science is advocated in public schools. It is really astonishing how many of us "have eyes and see not," and, it might also be added, "ears and hear not." Let any teacher whom I now address, ask himself, and then put to his pupils, the following questions: Do swallows usually reach this neighborhood before or after the Queen's birthday? Do horses and cows rise from the ground in the same manner—if they differ, how? Is there any difference between the eyes of these animals? How many toes has a dog on each foot? Has it the same number before and behind? Have all dogs the same number? What is peculiar about the action of a goose when entering a

door—say a barn door? How many legs has a mosquito?

These questions are remarkable for their simplicity only, and easily as the answers may be obtained, it will be something unusual if many teachers or pupils can be found who will give them readily, and with certainty. Of course, it may be said that the ability to answer frivolous queries like these, is of very little value. This is quite true, in a sense, but will any one deny that he who has noticed such things so closely as to be able to reply correctly at once, is gifted with a more exact knowledge of things in general than he who cannot? Is it not such as he who makes the best artist, artizan, or farmer—the most successful lawyer, physician, or teacher? This is our answer to the irrepressible "What good?" which hangs forever on the lips of those who can see no utility in anything unproductive of dollars and cents, that the cultivation of the observing faculties, arising from the study of the natural sciences, is calculated to produce a superior class, whether of mechanics, agriculturists, or professionals, to those who have imbibed the sum-total of their information at second-hand, from text-books and the mouths of preceptors.

President White, of Cornell University, says:—"A most important means of discipline and culture is to be found in the natural sciences. On these much industrial and general progress depends. They discipline the power of observation, and reasoning upon observation. They give, too, a culture to the sense of beauty in form and fitness of adaptation."

To most teachers, perhaps, the chief inducement to teach natural science will present itself in the fact that it enables many pupils to pursue other studies with greater facility. For example, the boy or girl who has been trained to note carefully the

peculiarities of a pebble, a bug, or a bird, will all the more readily retain the impression of what a word looks like, and thus improve in spelling. The scholar who has been taught to examine critically the characteristics of foliage or efflorescence in a plant will remember more vividly the features of a map—will be better able to draw an outline of any object he has ever seen, and to understand more intelligently those *viva voce* explanations that every teacher must frequently make use of.

It is scarcely necessary to say, that in teaching natural science, it is indispensable requisite either to have the objects that form the subject of the lesson in the class, or to have previously directed the attention of the pupils to where they may be seen. As already indicated, there will be no want of interest on the part of the scholars, even should the lessons fall considerably short of the teacher's ideal in regard to what they ought to be, or what they might be. For a month or two, it may be well to take up any common specimen, whether furnished by a pupil, or provided by the teacher himself, until an interest in the study has been aroused on the part of all concerned. After a while, some more methodical arrangement may be adopted. Something will depend on the locality of the school, no doubt; still, a good deal may be done in most of the branches of natural science, in connection with almost every school in Canada. A vote of the pupils may decide as to whether the subject for three months shall be stones, insects, fish, birds, quadrupeds, or plants. Each scholar might provide himself with a small book in which to make a memorandum of

names, questions, observations, remarks, and other notes, for the season. The specimens should next be procured. It will be found not unfrequently that many of those are worthy of preservation, thus forming an interesting little stock of material to fall back upon for reference or casual remark in the future. In places favorably situated, a few cases may be provided to protect specimens, whilst some might even go the length of organizing a small museum. The effect on the school would shortly be apparent, not only in the aptitude with which questions are answered, but in the ingenuity with which queries are propounded. The programme affords ample room for the introduction of this study in the shape of object-lessons, and it will be well worth the while of teachers to give it a trial for a few months, if only to the extent of one hour per week, and this is fully as much time as even Tyndall and Huxley have demanded for it as a study in the schools of England.

In the preparation of a paper such as this, it would be easy to adduce prolific testimony in proof of what has been stated, and to add many other reasons for the pursuit of natural science study; but the aim has been, not so much to write an exhaustive essay, as simply to lay before the public school teachers of this country, in a plain, conversational style, some of the advantages likely to arise from even the humblest efforts to induce our young and ardent countrymen to scan, at least, a few pages in the great book of nature, and to grow up men of exact and varied information, disciplined by observation, wedded to truth, and lovers of the true and beautiful.

OUR SCHOOL MANUALS.

BY THE EDITOR.

THE function of school books in the economy of education is admittedly an important one, the more so as educational science advances, and the teacher grasps an exalted notion of his work. In Canada, the two causes which, in past years, most hindered the introduction of good text-books into our schools, were the too-rigid insisting upon uniformity, and the premature desire that they should be of native authorship. Conservatism in the one case, and an excess of patriotism in the other, lost to education many valuable years' work. How mischievous was the system there is little means of knowing: how great has been the change, the present extensive school curriculum will indicate. To be just, however, there was more than a change of system that brought about the extension of the list of authorized text-books in use in the Province. The impetus given to the production of improved manuals by recent educational legislation in England, had much to do with the enlargement of the list, as it set in motion the activities of publishers to adapt their text-books to the requirements of the 'new code,' and increased the number of works available for introduction. Fortunately, too, the influence of this new publishing enterprise was contemporary with the reorganizing movement of the latter days of our own Council of Public Instruction, and the departmental régime which succeeded it. The result was the increased number, and

the improved character, of our school text-books. That the common movement may continue which brought about so desirable a result, must be a matter of earnest concern to all well-wishers of our educational system, though care must be taken that each movement shall keep to its proper sphere. But in few matters is there greater danger of the introduction of improper influences and undue pressure than in that of the submitting and approving of the text-books for school use. One distinctive motive should, by publishers and advisory committee alike, be kept in view, viz.: that no personal considerations should affect the act of approval, or interfere with the singleness of aim with which the task of selection is undertaken. Imperatively, the examining committee, at any rate, should be inaccessible to outside influence, and be rigorously impartial in its work. Trade may descend to jockeying: officialism, never! The Minister of Education, of course, should still further be aloof from the intrigues of trade, and from all influences, religious, political, and social, that would embarrass his actions or prejudice his mind. Still, there is necessity for an active sympathy between, and a hearty co-operation among, the makers of books, and those called upon to adjudicate upon their merits. It is incumbent upon each that they should appreciate and sustain a high standard of intelligent merit in their construction, and respect the considera-

tions which should have paramount weight in the difficult task of appraising their value and of making proper choice of them. A due regard for these considerations is the first step towards securing efficient school manuals.

Nothing is more important, moreover, than that the machinery of the Advisory Committee should have no interest in the determining voice of its decisions. Under the old régime, the unwisdom of impeding the free exercise of the judicial function in permitting officers of the department to write school books, was made clearly manifest. At the present time there is some danger of our forgetting the lessons of the past in this respect, though, on the surface, no serious overt act has been committed. The breach of propriety involved in the connection of authorship of text-books prescribed for use with the inspection of schools using, or not using them, is apparent to any one who reflects for a moment upon the matter; and the gain that is had by the adoption of works produced by any of the learned Inspectors of the Department is more than qualified by the effect upon the profession which such an infringement of the code of propriety produces. That other, and more positive evils come of permitting this unseemly engagement in dual occupations, one can scarcely doubt. Of course, it may seem hard that those who have the ability and the aptitude to produce good school manuals should not be free to do so; but while employed in other specific duties, and in those which are apt to conflict, even remotely, with their official work, self-repression should not be considered too obligatory. When the lawyer is elevated to the bench, he is expected to concern himself with judicial work, and not with that of the pleader. His duties are to administer the laws: not to write treatises upon them.

The truth is that in this matter there should be no semblance of anything that would interfere with the rigorously impartial discharge of the duties of Inspectorship; and no entangling or embarrassing interest should be allowed to interpose itself in the due exercise, on the part of both inspector and teacher, of the responsible legitimate work of either officer. The more independent these respective functionaries can be, the one of the other, the better,—always, of course, subject, but only so, to the wise and deliberate control of the chief executive of the department. In the system on which the school grants are made, we have, in the “payment by results,” quite enough temptation to truculence, and more interference than is desirable with the independence of the teacher. The most valuable quality in those engaged in the profession, and one which most wants continuous exhibition, is moral fibre, and anything that tends to repress its growth and expression, and to enfeeble the teacher in an already notoriously weak spot, should be repressed and removed. In the matter of the pocket, the best of mankind are weak; but to temptations that already environ the teacher, there is little sense in adding those that should not connect themselves with the machinery of the department. Let the profession, therefore, be free from the motive to use, or refrain from using, a text-book in which any Inspector has even remotely an interest. Those who fill the arduous office of Inspector, also, will best consult their own interests, while conserving that dignity and self-respect most essential to their efficiency and success, by abstaining from even the most distant commercial connection with the implements of education, and from any alliances that might derogate from the high status to which their official position assigns them.

To follow this rule, as we have said, it may deprive education of the services, as authors, of those most competent to prepare school text-books. But this is unavoidable; though it may be a question how far even the able and practical teacher is capable of preparing so seemingly slight a bit of professional work as a school manual. Easy as the task may seem, it requires vastly more than scholarship and practical acquaintance with the *technique* of the schoolmaster. Educational book-making, even more than craftsmanship in general literature, requires art, skill, and an apprenticeship in letters, rarely met with in uncultivated fields and in inexperienced hands. Hence, while there may be a high degree of scholarship, and a lengthened experience in teaching, the result of experiments in school book-making, for lack of literary fitness and aptitude for the work, may not be gratifying. Other circumstances, also, interpose to lessen the chances of success in native school book manufacture, and these connect themselves with the mechanical production of the work, which, in the mass of instances, requires a larger investment of capital to produce, in any high degree of artistic and mechanical excellence, than the limited field of sale adequately remunerates. At the same time, it is conceded that all worthy attempts should be made to give to our native literature such works as would be useful to our schools, and creditable to Canadian letters and scholarship. In some departments of tuition, however, it is essential that our manuals should be written, or compiled, from a Canadian point of view. We should, of course, have primers of Canadian history, and our reading books should enshrine such models of literary or oratorical composition as Canadian writers and publicists can be said, after severe critical appraisement, to have given

us. Recent years have added much to the native literature of Canada, which it would be well to bring to the notice of our youth; and it would be a substantial stimulant of Canadian patriotism and citizenship could such material be garnered into our reading books and histories. How rich, too, in a national and historic literature, is the early French régime in Canada, with which few of our youth ever make acquaintance in our schools; and what could better fire the spirit and energize the life of Canadian youth than to read the stirring incidents of early missionary and pioneering adventure in the country with which the period is saturated. Of course such literature wants careful selecting, and requires the exercise of a broad catholicity of opinion and taste. But the risk would not be greater than the reading, in our English histories, of disquisitions upon the acts of religious bigotry and tyranny in the old world. Indeed the advantage would be greatly in favour of our Canadian annals, for they abound in material recording acts of heroism and of Christ-like humanity, which should make the heart of every protestant youth warm to his co-religionist and countryman of to-day, despite all he may have imbibed of distrust for the religious zealots who have darkened for him the page of English history by their cruelties and wrong.

But there are other advantages to be gained in a national point of view, in importing into our reading books, and into the lessons from our histories, a larger element of specially Canadian interest. If as a people, we are ever to grow out of our colonial swaddling-clothes, and to fit ourselves some day for assuming any higher rôle in national existence into which the wheel of time and destiny may carry us, it is not too soon to imbue our youth with that *amor patriæ* which familiarity with the history and

traditions of the past, and the expression of intelligent aspirations for the future, will best inculcate. Nor need we be too timid in approaching this matter, or hesitate to make it the subject of a timely lesson in native history, for an enlightened patriotism can only exist with a wise and solicitous regard for what the future has in store for us. Primarily, however, let our youth be intelligently informed as to the past, and of the stimulants that lie back in the records of our career, to new endeavour and to greater achievement in the national path. No more important factor can be relied upon in this work than an eloquent text-book on Canadian history, leavened with an intelligent patriotism, and inspired by elevated national instincts. A chapter of one of Parkman's histories, subdued with a page or two of less brilliant narrative, or with a lesson on the constitutional growth of the country, would provide the course to hand; or, if we might not be mistaken as referring to a party-shibboleth, instead of to material for patriotic inspiration, we might suggest Mr. Foster's brochure, "Canada First," as an admirable historical text-book for our schools. To speak of any of Mr. Goldwin Smith's essays on the destiny of Canada, eloquent and thoughtful as they ever are, would, doubtless, be to tread upon volcanic ground. That the arguments of the learned Professor, however, should be familiar to those who pretend to teach a truer wisdom, and a more desirable future for the country, we can only, in passing, emphatically urge. Little as we are, personally, in sympathy with their drift, we cannot too warmly denounce their being characterized as the utterances of disloyalty and unreason. They are not these, and only a prejudiced and illiberal mind can call them so.

But to pass on, our text-books in geography, too, must be native in

their origin,—not, of course, that they should, by giving undue space to our own territorial possessions, to the limitation of that devoted to the rest of the world, foster among our youth either the insular bumptiousness of Englishmen, or the aggravated national vanity of the American,—but that, with a wise and cosmopolitan intelligence, they should justly appraise Canada's position and claims as a nation; be familiar with the sources of her wealth; and informed as to the features of her industries and trade. Of these industrial features of the country's commerce, our text-books in geography must largely take note, and the range is not a limited one if properly brought out, as Canada possesses such an area and resource of productive wealth as to rival countries of greater prominence, and of higher national status. So varied and interesting, too, are the physical features of this portion of the North American continent—of which no English or United States text-book could sufficiently take note—that we have additional motive for the production of native geographies, and for such detail, in the portion devoted to Canada, as would do justice to her vast territory and its remarkably diversified features. Hitherto, there have been two drawbacks, however, to the satisfactory study of Canadian geography in our schools, but which we trust soon to see removed. In so purposely discursive a paper as this, it may not be out of place here to allude to them. We refer to the very incidental and totally inadequate manner in which the subject of physical geography is dealt with in our schools, and the indifference of the Dominion and Provincial Governments with regard to cartography. That the teaching of geography, now-a-days, should be limited to lessons on the political divisions of the world, and to the enumeration of gulfs, capes,

bays, heights of mountains, lengths of rivers, etc., etc., which from time immemorial has prevailed, is to take a narrow view of the importance and range of geographical science. Surely it is a grave omission that physical geography has so indifferently distinctive a place assigned to it as a study on our school curriculum, and that no specific manual on the subject, beyond the scope of a primer, appears upon the list of our school text-books. The other matter of complaint—of indifference on the part of the General and Provincial Governments to the construction of comprehensive, authentic, and readily accessible maps of the country, is one that calls for immediate attention and remedy. Attached to the Crown Lands' Department, in the Provincial Government, and to the Department of the Interior, at Ottawa, is a large staff of draughtsmen and survey officers, and an extensive and costly machinery of surveying is maintained. But withal, it would be difficult for the public to get a decently useful and authentic map of the Dominion, or of the separate Provinces, upon which one could rely, as emanating from an official source, for either general use or for the construction of maps for Canadian school geographies. This hint may, perhaps, suffice for those responsible for the omission or neglect, and we may, ere long, see attention given to the matter which is of both national and educational importance.

We have but space, in the present article, to refer to one other class of school manuals—those on science subjects—which, happily, of recent years has had assigned to it that prominence among the implements of a liberal and practical education, which its importance deserves. The place assigned by the Minister of Education to the studies of which they treat, is a gratifying one to all

who desire to see the acquisition of useful studies keep pace with the advancement of intellectual culture. The time is brief, at best, in which Canadian youth can acquire even the elements of book instruction, and it is peculiarly fitting that those studies which must be pre-eminently useful to them, in their after practical career, should be those which pertain to an industrial life. Carlyle has put it that it is an open question when a man is reading a book, whether he is, or is not, doing rather better than nothing at all. And in the priceless years devoted to school work, we should be careful, as wise guardians of the young, that the studies which occupy the attention of those intended for the every-day routine of mechanical or industrial work, are those which will be of practical service in the pursuits in which they are to engage. In the new educational era that has dawned for the mechanic and the artizan, no machinery of our Canadian schools can be of more service to the country's industries or more helpful to the immature bone and sinew of the nation, than that which will provide the means of technical training and art instruction to the classes whose future is to be connected with either manual toil or skilled handicraft. For such, the importance of associating physical science with primary education cannot be over-estimated, and the introduction, on the list of authorized school text-books, of the many admirable science primers which have recently been issued by the publishers, is at once a matter for congratulation and an augury of practical and useful results. The day is yet distant when Canada can afford to let æsthetics and dilettanteism take the place of the sterner studies which give to her youth the energy and skill which make for the material advancement of the country and the substantial success of her sons. In some respects,

the rugged school of the vagabond world is a better one for a boy, whose hands want training to earn for him his daily bread, than the public school stimulants of pseudo-refined shop-keeping and city-clerking life. Of course, the school is not intended to be a workshop in which a lad is to learn the vocation by which he is to live. But our educational system will fail of its legitimate work if, while applying the mental discipline of ordinary school studies, it fails to direct their aim and purpose towards those practical ends which the mass of school children in this country want placing before them. In contributing to this, no unimportant aid can be given by efficient, well-adapted, and attractive text-books. It is a calamity when books aim at a practical end and are but poorly adapted to their purpose. No greater obligation, then, rests upon authors and publishers of school books than to see that they shall be pre-eminently good. Shortcomings in them are peculiarly mischievous. The captivating effect of literary skill in their construction should, also, be borne in mind. It is as important as the attractiveness to the eye of a bright, open, and inviting page. The pity is that so few are masters of the art of literary composition combined with simple and lucid narrative power. Let the would-be authors of our school text-books exercise the gift, if they have it, and in such works as Kingsley's "Town Geology," and Huxley's "Physiology," or "Physiography," they will find admirable models for their study. Superior, perhaps, to any of these, however,—and this is saying much,—is Clodd's Manual on "The

Childhood of the World"; and for style and matter, though not in the direction of a text-book, teachers will find exceeding profit in the perusal of Ascott Hope's "A Book about Dominies." To the vivid interest in concrete facts manifested by the pupil, nothing is more effective in retaining the attention, while impressing the lesson, than an engaging and attractive style, and too much importance cannot be paid to this. A word may be added, too, as to the mechanical excellence of our educational manuals. Hitherto, the native text-book has had a seemingly undivestable colonial look. Cheap paper, poor print, and worse binding, have been the features of their manufacture. We have now, of course, improved upon this, but there is still room for a greater advance. Particularly now, when illustrations have become so much a feature of our text-books, is there necessity for care, taste, and good material, in their mechanical and manual production. In the Educational exhibit, at the recent Paris Exposition, there was but one thing wanting to crown the achievement of Canada in the cause of education, viz.: native school books of the excellence and adaptedness which characterized the exhibit in educational apparatus and the mechanical equipments of the school. Literary successes, of course, are gained more slowly than material ones. But they may yet be ours, in addition to those already won, if professional culture and experience and literary taste and judgment are encouraged among us as matters of desirable Canadian possession.

CONTRIBUTORS' DEPARTMENT.

THE REPLY OF THE NINETEENTH CENTURY.*

Sir, I am growing old. It is true I have nearly a quarter of my life's span yet to run, and one may do a good deal in twenty-two years, especially when, as in my case, one can count on energy up to the last moment. Still, as you do not fail to remind me, I am old, and, like the beast in the fable, you, forsooth, must throw up your heels at me. You admit that you owe me a sort of filial loyalty, or fealty, and, judging by your very pronounced views on the said virtue of loyalty, I should have hoped your mouth might have been "*chained to the faults*" of your mother age. Your expression is a peculiar one, Sir,—and I hope before I finish that I may succeed in "chaining" you to a good many other faults, for which you are more answerable than I am.

Your stock of loyalty, which we find deficient at the present moment, is no doubt all devoted to the "righteous cause" of the House of Stuart, of which you are so fond. I am sorry that the "crop-headed rascals" you complain of, and those very much "overrated" men, Hampden and Sydney, and still more the innate stupidity and perfidiousness of the Stuarts themselves, placed it out of my power to preserve even a Pretender of their blood to receive your congenial homage.

Although you quote Carlyle to the effect that my children are mostly fools, I can as-

sure you they are not such fools as to interfere between you and your sainted martyr to any appreciable extent. You may have him all to yourself, and after Milton, Macaulay and Carlyle polished him off, it will be some time before he will need another Eikonoklastes.

So I am disposed to "boast and bubble over" at my achievements in popular education? I ought to be ashamed of my previous neglect, eh? Upon my life, I thought my elder brothers and sisters, eighteen of them in number, were the parties chargeable with neglect! It is true I might have set about it sooner; but reflect, my candid friend, I had a hard battle to fight with prejudice and ignorance, with persons who objected to my teaching servants to read because it would make them discontented, and to my setting poor children to their copy books, because, forsooth, if they learnt to write, the crime of forgery would increase so greatly! Can it be barely possible, Sir, that some of your arguments on this head remind me forcibly of these early struggles of mine?

It appears that the "the dark ages" is a mis-nomer. "Education was the heritage of the Church and the poor." The pulpit eloquence of Europe in the middle ages has never been surpassed, for, as you tell us, the preachers were at once schoolmasters and priests. How shockingly the historians must have deceived us! I was under the impression that the services of the Church were conducted in a dead language, that the pulpit was a comparatively modern innovation, and that, if one solitary preacher arose, such as Savonarola, (and I know none other worthy of the name) the Church burnt him very speedily. Quite right, of course; why

* NOTE.—This contribution is published as a reply to three articles, entitled, "A Quarrel with the 19th Century," which recently appeared in the pages of a literary contemporary, "The Canadian Monthly," from the pen of Mr. Martin J. Griffin, of Halifax. Insertion is given to the paper not to encourage controversial writing, still less to give place to discussion in religious polemics, but as it deals with some historic facts in regard to education, and other kindred topics, of presumed interest to our readers.—ED. C.E.M.

didn't he stick to composing miracle plays, with a comic devil and some surprising feats in stage-carpentry which were all the share of the "heritage" in question that the poor were then thought fit to enjoy.

A Florentine of the 15th century, you tell us, knew more of the movements of the learned world than the average nineteenth century citizen of London or New York. I grant you he took a keen interest in the narrow circle of the learned in his own city, but, in the absence of anything corresponding to our daily press, how could his knowledge of the "learned world" at large be compared to ours. You go on to add that this typical Florentine of the 15th century "was livelier, more agreeable and refined, *as indeed he is at this day*, than even the wealthy commercial classes of other countries." The Florentine of the 15th century is, *at this day*, I should fancy, rather too dusty and decayed to compete with a modern Canadian in refinement or any other agreeable quality.

We must needs take it for Gospel that there were 30,000 students at Oxford in the 13th century. It is true that careful historical writers denounce this as a myth, but Huber states it and you endorse it, so let it pass. What a falling off we have to lament, to be sure! But stay, did or did not the Universities then, and even later, take in mere boys, fulfilling, in fact, the place of our modern grammar schools—and was not the teaching there, as well as under the sainted Abelard at Paris, very much of the how-many-angels-can-stand-on-the-point-of-a-pin sort of style? Perhaps my querulous critic admires the scholastic philosophy, if so, pray let him give it a niche beside the Stuarts. I am content to laugh at it with Rabelais and to turn away from it in the company of Verulam.

"Scholastic culture" in this pet 13th century "was widely diffused through the nation at large,"—with such excellent results that the highest nobility seldom signed their names, preferring to make a cross or use a seal, and that the unwonted power displayed in stumbling through a verse of the Psalter

ranked a man at once among the *literati*, and enabled him to claim his benefit of clergy.

But my chief sin and shame is the divorce of religious and intellectual training. My critic announces the "truism" that "a good sound training in religious belief is an essential quality" (? element) "in all systems of education." If he would accept a word of advice from an antagonist, I would bid him beware, lest when he thinks that the enunciation of a truism will floor his opponent, a begging of the question does not lie hidden beneath. State a case thus: Plenty of good food is an essential element in the successful bringing up of a child, *therefore* no school should be allowed to teach a child unless it also looks after its diet. It has seemed to me that as tastes differ both in food and religion, and since what is one man's meat is another man's poison, we should do well to leave parents to their own discretion on these points and not to attempt to coerce people in things which everyone but those of my critic's way of thinking have agreed should be left free.

Having done with education, we come on again to legislation. I am told that I profess to hate class legislation and yet indulge in it. My critic has succeeded in fastening a charge of hypocrisy upon me by means of confounding two perfectly distinct things. The class legislation which aimed at dictating to each rank in life what it should wear and how many covers it should have on its table, I despise as childish and absurd. The class legislation which provides for the peculiar needs of each class, as Acts regulating railways, doctors and lawyers, has nothing in common with this, and there is nothing inconsistent in approving the one and condemning the other. Proper precautions against quacks and pettifoggers have nothing invidious about them. The class legislation which, in my critic's model 13th century, bade fair to lay the foundations of a system of caste and, as in the case of the benefit of clergy already referred to, tended to place whole privileged bodies *above* the law which was made in the instance for all alike, was both invidious, unpractical and unjust.

It seems that we are blindly struggling to get back to the days of the Tudors. This was rather an unlucky epoch for my critic to pitch upon. But even Homer nods sometimes, so we must forgive the critic who forgets that the agricultural laborer in the time of the Tudors filled the air with his cries of complaint against the conduct of the land-owners who were throwing all their small arms into large sheepwalks and employing two or three herdsmen and a few occasional shearers where once a hundred farm laborers found steady employment all the year round. Clearly the agricultural laborer, clamoring to be "attached to the soil" does not wish to hark back to the *regime* of the Tudors. Nor does he (for we will not make too much of my critic's slip) aspire to return to that old condition of life, when the *adscriptus glebæ* really was attached to the soil, but by the badge of servitude, holding his land by base and precarious tenures and struggling manfully to maintain a *status* to which my critic would basely desire his descendants return.

Trade, too, we are told is on the backward path. The old handicraftsman was the master of the workman of to-day. Here I will agree with my critic in part. But at what price was that superiority purchased? At the price of the endurance by the consumer of an odious monopoly of production by a few favored Guilds. It is true we can no longer build a Salisbury Cathedral, it is none the less true that our poor need not be housed like swine because of the expense of putting up decent homes for them.

It is, a clause in the impeachment against me that "Common lands have been filched away." Sir, it was the disgrace of my immediate predecessor, the eighteenth century, that enclosure bills became law by the hundred at a time.

It is my boast that the tide has been turned in my days, and for ages to come the workmen of England will tell their children of the brave work that was done when Epping Forest was saved for the Londoner, and Common Preservation Bills became the order of the day.

Emigration, my critic adds, is an invention

of those wretches, modern Liberals. The expectation of an extra dollar in a foreign land tempts the peasant to throw aside his allegiance and leave the old country. Does this weaken the stability of the throne as you would have us believe? Would a starving family in Ireland, who, while starving, also reduced the wages their nearly starving neighbors were earning, be a source of much stability? Or does my critic prefer the previous style of emigration, which was fed by two modes, viz.: religious persecution and kidnapping under the shallow pretext of indenting men as apprentices (in fact white slaves) to the planters of Virginia?

Room for literature! Will it be believed that my critic makes out of my fecundity and the barrenness of my predecessors a grave charge against me? Because Froude, Macaulay, Hume, and Green have all written from different standpoints, the student of history is to hold up his hands in despair and sigh for the good old days when there was nothing but Baker's Chronicle, or Rapin's History. I should have thought that to hear the version of so many partisans would have helped any man, with ordinary brains, to arrive at a fitting conclusion,—with a tolerable certainty, too, that no important fact would be omitted or garbled when such various interests were involved. Either brains or patience must be lacking, if a man prefers a single dogmatic teacher,—I leave the reader to make the application.

What knowledge of history, then, can we expect from this critic? However little we gave him credit for, we shall be surprised at the ignorance he displays when he tells us that history has branded such projects as the elevation of the Greeks and Slavs and the unification of Italy "with her hottest iron!" What? History has indeed told a tale with regard to Italy's unity, a tale, which, amongst all the wonderful changes of my life, has been the most startlingly providential; but that tale has branded, not Italy, but Italy's oppressors, with the red-hot brand of shame! The thundering voice from the Vatican, of which my critic speaks in his finishing paragraphs so complacently, may hurl anathemas

and defiance on Italy, once more free, once more united, but the God of hosts has spoken once and again on Italy's behalf, and those who have watched the course of events from the time when a handful of men under Garibaldi first struck a blow for Italy's freedom till the day when Rome herself, the Im-

perial City, opened her gates to her rightful king, will say in reproachful accents to Pope and to Priest, "How can you curse whom God has not cursed? how,—if you be God's vice-gerents,—can you refrain from blessing whom God has clearly blessed?"

Barrie.

F. R.

ARTS DEPARTMENT.

EXAMINATION PAPERS.

NOTE.—For the present month we publish the papers given at the Intermediate, Second-class, and Admission Examinations to High-Schools and Collegiate Institutes, for the current half-year. Teachers will, doubtless, find these more acceptable on the present occasion than any general contribution in this department.—MATH. ED. C.E.M.

ADMISSION.

ENGLISH GRAMMAR.

1. Parse—"So signal a victory, gained by a small force, is one of which every loyal British subject in America may well be proud."

2. Analyse—"Irritated at this false alarm, we determined to avenge ourselves by going and tormenting the Strokr."

3. Explain the meaning of "Subjunctive Mood," "Participle," "Abstract Noun," "Superlative Degree," "Relative Pronoun," and "Progressive Form."

4. Correct the following sentences, and give your reasons:—

(a) My head pains me very bad.

(b) I can not find out neither where the lesson begins nor where it ends.

(c) Will you lend me them books?

(d) Bread is more nutritious, but not so cheap, as potatoes.

(e) I started a week ago from last Saturday.

5. Write the feminine of *Sultan*, *Stag*, *Baker*; the plural of *Dwarf*, *Staff*, and *Glory*; the positive of *Less*, *More*, and *Fav-*

ther; the past participle of *Go*, *Come*, and *Sink*; the possessive plural of *Boy*, *Lady*, *Mechanic*, *Man*, and *Jay*; the objective of *Which*, *He*, *That*, *They* and *You*.

6. How do you find—

(a) The *Number* of a Verb?

(b) The *Case* of a Relative Pronoun?

(c) The *Tense* of a Verb?

DICTIONARY.

As they had neither wives nor children, they generally lived together by twos, for mutual protection and assistance; when one died the survivor inherited his property, unless a will was found bequeathing it to some relative in Europe. Bolts, locks and all kinds of fastenings were prohibited among them, the maxim of "honour among thieves" being considered a more efficient safe-guard. Their dress consisted of a shirt dipped in the blood of an animal just slain, a leathern girdle, in which hung pistols and a short sabre; a hat with feathers, but without a rim, except a fragment in guise of a visor, to pull it on and off, and shoes of untanned hide, without stockings. Each man had a heavy musket and usually a pack of twenty or thirty dogs. —*Fourth Book of Reading Lessons*, p. 145.

ARITHMETIC.

1. (a) Define abstract number, composite number, common multiple of two or more numbers; and explain by an example the use of the numerator of a fraction.
- (b) Express in figures four hundred billions, four millions, forty thousand and four units.
2. A man has 5 tons 6 cwt. of flour; after selling 25 barrels of 196 lbs. each, how many sacks, holding 150 lbs., can be filled with the remainder?
3. How many rails in a straight fence 40 rods long, 5 rails high, each rail being 10 feet long?
4. If it cost \$57.60 to carpet a room 20 feet long, with carpet $2\frac{1}{2}$ feet wide, at \$1.20 per yard, find the width of the room.
5. Find the value of

$$5\frac{1}{2} \text{ of } \frac{2}{9} \text{ of } 2\frac{3}{4} - 1 \div (\frac{1}{5} + \frac{1}{3})$$

$$1 - \frac{3}{4} \text{ of } \left\{ \frac{1}{2} + \frac{1}{2} \text{ of } \frac{\frac{1}{20}}{\frac{1}{7} \text{ of } 1\frac{3}{20}} \right\}$$
6. A pint contains $34\frac{3}{4}$ cubic inches; how many gallons of water will fill a cistern 4 ft. 4 in. long, 2 ft. 8 in. wide and 6 ft. $1\frac{1}{2}$ in. deep?
7. If 12 men earn \$120 in 12 days, by working 10 hours a day, in how many days will 15 men earn \$150 by working 8 hours a day?
8. A and B have together 210 acres of land, and $\frac{3}{4}$ of A's share is equal to $\frac{9}{7}$ of B's share. B paid \$1,470 for his land; for how much must he sell it to gain \$20 per acre?

GEOGRAPHY.

1. Define Longitude, Physical Geography, Zone, Tropic, Ecliptic, Orbit of the Earth.
2. Name the States of the American Union that border (i.) on Lake Michigan, (ii.) on the Gulf of Mexico, (iii.) on the west bank of the Mississippi River.
3. Name the Provinces which form the Dominion of Canada, with the capital and chief exports of each.

4. Name the principal islands in the Baltic and Mediterranean Seas and the countries to which they belong.

5. Name the principal rivers, the great mountain chains, and the largest cities between Siberia and the Indian Ocean.

6. State the position of the following:—
 Cities—Chicago, Detroit, Kingston, St. John.
 Rivers—Rhine, Mersey, Shannon, Ohio.
 Capes—Passaro, Wrath, Bon, Lopatka.
 Straits—Sunda, Bass, Cooks, Juan de Fuca.
 Islands—Philippine, Kurile, St. Helena, Santa Cruz.

ENGLISH HISTORY.

1. Who were the Saxons? When did they invade Britain, and what changes did they effect in it?
2. What English kings endeavoured to conquer France, and what was their success?
3. Who was Queen Elizabeth? Mention the principal events of her reign.
4. About what time did King James I. live? Show how Queen Victoria is descended from him.
5. What was the Reform Bill? When was it passed, and why was its passing a very important event?
6. What are the principal differences between the English Government and that of the United States?

COMPOSITION.

1. Write a short letter inviting a friend to spend the Christmas holidays with you.
2. The following sentence has two meanings. Write two sentences, each of which shall clearly express one of them.—“The Spaniards held them in such terror that they usually surrendered on coming to close quarters.”
3. Combine the following statements so as to make not more than two sentences:—
 It was noon.
 I went to a place.
 There something had been arranged.
 This had been arranged.

I should hold a council with the chiefs of all the tribes.

The chiefs of all the tribes had congregated to meet me.

This was according to appointment.

I arrived.

I found the chiefs of all the tribes there.

I found the chiefs of all the tribes all assembled.

The chiefs of all the tribes were standing in groups.

The chiefs of all the tribes were dressed in their finest costumes.

The chiefs of all the tribes had feathers waving on their heads.

The faces of some were painted.

The faces of some were half-painted.

The faces of some were quarter-painted.

Some had one eye painted.

This was according to the customs of the different tribes.

4. Write a short composition on the Dog. In it you may tell the size, kinds and use of the dog, the shape of its different parts, and any story about a dog which you know.

FOURTH BOOK AND SPELLING.

1. "The intelligence of the unexpected landing of Wolfe above the town was first conveyed to the Marquis de Vaudreuil, the Governor-General, about day-break. By him it was communicated without delay to Montcalm. Nothing could exceed the astonishment of the latter at the intelligence. He refused at first to give credence to it, observing, 'It is only Mr. Wolfe, with a small party, come to burn a few houses, look about him, and return.' On being informed, however, that Wolfe was at that moment in possession of the Plains of Abraham—'Then,' said he, 'they have at last got to the weak side of this miserable garrison. Therefore, we must endeavour to crush them by our numbers, and to scalp them all before twelve o'clock. He issued immediate orders to break up the camp, and led a considerable portion of the army across the River St. Charles, in order to place them between the city and the English. Vaudreuil, on quitting the lines

at Beauport, gave orders to the rest of the troops to follow him. On his arrival at the Plains, however, he met the French army in full flight towards the bridge of boats, and learned that Montcalm had been dangerously wounded. In vain he attempted to rally them—the rout was general—and all hopes of retrieving the day, and of saving the honour of France, were abandoned."

Fourth Reader, p. 88.

- (i.) Explain the sense in which the words 'intelligence,' 'credence,' 'garrison,' 'endeavour,' 'issued,' 'lines,' 'rally,' 'rout,' 'abandoned,' are used in this passage.
 - (ii.) What is meant by 'retrieving the day,' and what by 'saving the honour of France.'
 - (iii.) *Landing of Wolfe above the town.* Name the town. By what route did Wolfe come to it? In what direction from it is a place above it?
 - (iv.) What^s is the position of Beauport, the River St. Charles, and the Plains of Abraham with reference to this town? Across what was the bridge of boats?
 - (v.) Which two of the following words are pronounced alike—'root,' 'rout,' 'route'?
 - (vi.) How many years have gone by since the events here told happened? Give the rest of the story of Wolfe and Montcalm in your own words.
2. Give an account of the conquest of Mexico.
 3. "What should we do but sing His Praise
That led us through the watery maze,
Where He the huge sea-monsters wracks,
That lift the deep upon their backs,
Unto an isle so long unknown,
And yet far kinder than our own?
He lands us on a grassy stage,
Safe from the storms and prelates' rage."
Song of the Emigrants in Bermuda—
Fourth Reader, p. 143.

- (i.) What is meant by "the watery maze," and why is it called a 'maze'?
- (ii.) What is meant by 'the deep'? Name the 'isle so long unknown,' and also 'our own.'
- (iii.) Who 'lands us on a grassy stage'? What is the meaning of 'stage' in this line? What are 'prelates'? Explain the reference in 'prelates' rage.'
- (iv.) Make a list of the dissyllables and one of the trisyllables in these lines.
- (v.) Give the other words pronounced the same as 'praise,' 'led,' 'maize,' 'sea,' 'their,' 'isle,' 'an,' 'so,' 'our,' and explain their meaning.

SECOND-CLASS TEACHERS

AND INTERMEDIATE.

ENGLISH GRAMMAR.

1. Fallen cherub, to be weak is miserable
Doing or suffering; but of this be sure,
To do aught good never will be our
task,
But ever to do ill our sole delight,
As being the contrary to His high will
Whom we resist. If then His providence
Out of our evil seek to bring forth good,
Our labour must be to pervert that end,
And out of good still to find means of
evil
Which oft-times may succeed so as perhaps
Shall grieve him, if I fail not, and disturb
His inmost counsels from their destined
aim.
—*Paradise Lost*, Bk. I., vv. 157-168.

- (i.) Fully analyse the above passage.
- (ii.) Parse 'cherub,' 'doing,' 'aught,' 'good,' (in third line), 'ill,' 'as,' 'being,' 'then,' 'seek,' 'to find,' 'which,' 'shall relieve'.
- (iii.) Explain the derivation of 'sure,' 'aught,' 'delight,' 'counsels.'
- (iv.) What is the force of the s in 'oft-times' and in 'perhaps'?

(v.) Scan the first and the fifth line of the extract.

2. What means are there in English for expressing relation between nouns?

Give rules for the use of the apostrophe and s.

Parse the italicized words in
"It is from *Chaucer's Wife of Bath's Tale*."
"The brightest jewel in the *Queen of England's* crown."

3. Distinguish between weak and strong verbs, and between regular and irregular verbs.

State, with examples, the rules for the sequence of tenses in English.

4. Distinguish the preposition from the conjunction.

Give an example of a conjunction compounded of a preposition and a noun.

5. Distinguish between derivation and composition in English. Give examples.

6. Distinguish between
The founder and president of the society;

and The founder and the president of the society.

He applied a rigorous scientific method;

and He applied a rigorously scientific method.

I alone can do it;
and I can do it alone.

7. Correct or justify the following sentences, giving your reasons in full in each case:—

"The Senate had decreed a separate triumph to both of them."

"The third and the fifth boys in the class are brothers."

"Divide these twelve apples between the four boys."

"Sixteen have been sentenced to suffer death, but two only were left for execution."

"Hanging and beheading is the punishment of treason."

8. Name the languages from which the chief components of English are derived.

Why is it that although the English language has derived many words from the Latin, it is not a Romance language?

DICTATION.

Battles, sieges, triumphs, the exploits of the chase were portrayed on the walls, sculptured in alabaster, and painted in gorgeous colors. Under each picture were engraved, in colors, filled up with bright copper, inscriptions describing the scenes represented. Above the sculptures were painted other events—the king, attended by his eunuchs and warriors, receiving his prisoners, entering into alliances with other monarchs, or performing some sacred duty. These representations were enclosed in colored borders of elaborate and elegant designs. The emblematic tree, winged bulls and monstrous animals, were conspicuous among the ornaments. At the upper end of the hall was the colossal figure of the king, in adoration before the supreme deity, or receiving from his eunuch the holy cup. He was attended by warriors bearing his arms, and by the priests or presiding divinities. His robes, and those of his followers, were adorned with groups of figures, animals, and flowers, all painted with brilliant colors. The stranger trod upon alabaster slabs, each bearing an inscription recording the titles, genealogy, and achievements of the great king. Several doorways, formed by gigantic winged lions or bulls, or by the figures of guardian deities, led into other apartments, which again opened into more distant halls. The ceilings above him were divided into square compartments, painted with flowers or with the figures of animals.

GEOGRAPHY.

1. Define Longitude, The Tropics, Oblate Spheroid, and Table Land.

2. Name the Zones, and state their widths in degrees.

3. Why is British Columbia so much warmer than the eastern coast of North America in the same latitude?

4. Sketch an outline map of Great Britain, and mark on it the position of eight of the chief towns, six rivers, three capes, and groups of islands around it.

5. Name ten American "commercial centres" and their chief exports.

6. Name the chief rivers of Europe and great cities on their banks.

7. Name the counties of Ontario west of York, and give their County Towns.

8. Where and what are Taranto, Cu Cyclades, Corea, Modena, Garda, Medi. Nice, Funen, Aspinwall, Gallinas, Aden, Tasmania, Tananarivo, and Queensland.

ENGLISH LITERATURE.

1. Write a brief synopsis of the contents of the first book of Paradise Lost.

2. Quote the passage referring to Leviathan, the description of Satan's spear, that of Mammon, and ten consecutive lines from any of the speeches of Satan.

3. And now his heart
Distends with pride, and hardening in his
strength

Glories; for never, since created man,
Met such embodied force, as named with these
Could merit more than that small infantry 575
Warred on by cranes; though all the giant
brood

Of Phlegra with th' heroic race were joined
That fought at Thebes and Ilium, on each
side

Mixed with auxiliar gods; and what resounds
In fable or romance of Uther's son, 580
Begirt with British and Armoric knights;
And all who since, baptized or infidel,
Jousted in Aspramont, or Montalban,
Damasco, or Marocco, or Trebisond;
Or whom Biserta sent from Afric shore, 585
When Charlemain with all his peerage fell
By Fontarabia. Thus far these beyond
Compare of mortal prowess, yet observed
Their dread commander: he, above the rest
In shape and gesture proudly eminent, 590
Stood like a tower; his form had yet not lost
All her original brightness, nor appeared

less than archangel ruined and th' excess
Of glory obscured: as when the sun new-
risen

through the horizontal misty air, 595
Of his beams, or from behind the moon,
Eclipse, disastrous twilight sheds
Of the nations, and with fear of change
Exes monarchs.

—Book I, Ll. 571-599.

Explain the meaning of 'created man,'
l. 573; 'named with these,' l. 574;
'Armoric,' l. 581; 'infidel,' l. 582;
'jousted,' l. 583; 'compare of mortal
prowess,' l. 588; 'observed,' l. 588;
'disastrous,' l. 597.

(ii.) Explain the allusions in

"That small infantry
Warred on by cranes."

"The giant brood
Of Phlegra."

"Th' heroic race * *
That fought at Thebes and Ilium."
"When Charlemain with all his peer-
age fell

By Fontarabia."

(iii.) Write a short note on 'Uther's son.'

(iv.) Explain the grammatical construction
of 'mixed,' l. 579; and of

"Thus far these beyond
Compare of mortal prowess, yet ob-
served
Their dread commander."

(v.) How do you account for Milton using
'her' in l. 592?

(vi.) Scan l. 592.

(vii.) Mention the characteristic features of
Milton's poetry which are illustrated
by this quotation.

4. Give the substance of Milton's de-
fence of himself for using blank verse in this
oem.

5. Describe Milton's Satan, introducing
quotations where you can, and pointing out
the difference between it and other concep-
tions of the Arch-enemy's character.

6. Tell what you know about the three
poets who are usually classed with Milton as
the greatest epic poets of the world?

7. Point out everything you know in the
poem which would assist a person ignorant
of its authorship and date, in arriving at an
approximately correct conclusion as to the
time of its composition.

8. Give an account of the part taken by
Milton in public affairs.

ARITHMETIC.

1. Show that $\frac{2}{3}$ of 1 = $\frac{1}{3}$ of 4.

Simplify

$$\left\{ \frac{1}{4} \left(\frac{4\frac{7}{8} \text{ of } 6\frac{3}{4}}{7\frac{2}{3}} \right) \div \frac{3\frac{3}{4} + 2\frac{1}{6}}{3\frac{2}{3} - 3\frac{1}{6}} \right\} \text{ of } £182 \text{ } 7s. \text{ } 5d.$$

2. Prove the principle on which the rule
for finding the G.C.M. of two quantities de-
pends.

Find the G.C.M. of 169037 and 66429,
and the L.C.M. of 44, 48, 52, 96.

3. Define Ratio. Show how to find a
fourth proportional to three given numbers.

A grocer has 224 lbs. of a mixture of chic-
ory and coffee, the chicory being to the coffee
as 1 : 6; what amount of chicory must be
added to make the ratio 1 : 5?

4. A cistern (no lid) whose floor and walls
are an inch and a-half thick, is 5 ft. 3 in.
long, 3 ft. 7 in. wide, and 2 ft. $5\frac{1}{2}$ in. high,
in *external dimensions*; find the cost of paint-
ing the internal surface at 90 cents per square
yard.

5. Perform the following operations:—
.053407 $\times$.047126 to six places of decimals;
and 2.569141797 $\div$ 7.5284 to five places of
decimals. (Ten marks to be allowed if done
by the *contracted* method; 5 marks for cor-
rect answer obtained in any other way.)

6. A note for \$730, drawn at 90 days and
bearing interest at 8% per annum, is discounted
by a broker 45 days before maturity; what
must the broker pay for the note in order to
realize 10% for his money? (No days' grace.)

7. A discount (true discount) of \$4 was
allowed on a bill of \$52 that had 8 months to
run, and at the same rate a discount of \$5
was allowed on a bill of \$75; how long had
the latter bill to run?

8. A grocer mixed coffee at 28 cents a pound with some of a better kind at 42 cents a pound, and by selling the mixture at 35 cents a pound he gained 15% on the former and 20% on the latter; in what proportion did he mix them?

9. A vat 4 ft. long, 3 ft. wide, and 9 in. deep, contains pulp for making paper; a percentage of the pulp is lost in drying, and a sheet of paper 2700 yards long, 2 ft. 6 in. wide, and .004 of an inch thick, is obtained; what per cent. of the pulp was lost in drying?

10. Find the area of a trapezoid whose parallel sides are 27.5 and 38.5 chains respectively, and whose other sides are 12.5 and 15.5 chains respectively.

HISTORY.

1. State the principal grievances that led to the revolt of the peasantry in the reign of Richard II.

2. Between what parties was the Treaty of Troyes concluded? How far were its terms fulfilled?

3. State what you know about the introduction of Printing into England.

4. Write brief explanatory notes on the Convention Parliament, the Toleration Act, the Peninsular War.

5. Give the date of the Treaty of Utrecht, and state what events led to it.

6. Where are the following places, and with what important historical transactions are they connected:—Lewes, Naseby, Plassey, Yorktown, Amiens?

7. When did the Chartist agitation take place, and what objects had the agitators in view?

8. Give an account of the causes of Lord Durham's mission to Canada in 1838? What were its results?

9. Tell briefly what you know about the battle of Cannæ.

10. Contrast the character and political aims of Marius with those of Sulla.

ALGEBRA.

1. Multiply

$$4x^2 - \frac{2}{5}x + \frac{1}{25} \text{ by } 2x + \frac{1}{5}.$$

Prove that

$(\frac{1}{2}x - y)^3 - (x - \frac{1}{2}y)^3$ is exactly divisible by $x + y$.

2. Express in words the meaning of the formula

$$(x+a)(x+b) = x^2 + (a+b)x + ab.$$

Retaining the order of the terms, how will the right-hand member of this expression be affected by changing, in the left-hand member (1) the sign of b only, (2) the sign of a only, (3) the signs of both a and b ?

3. Simplify $(a+b)^4 + (a-b)^4 - 2(a^2 - b^2)^2$; and show that

$$(a+b+c)(b+c-a)(a+c-b)(a+b-c) = 4a^2b^2 \text{ when } a^2 + b^2 = c^2.$$

4. Prove that $\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$.

Simplify

$$\left(\frac{a^2 + b^2}{2ab} + 1\right) \left(\frac{ab^2}{a^3 + b^3}\right) \div \frac{4a(a+b)}{a^2 - ab + b^2}$$

5. I went from Toronto to Niagara, 35 miles, in the steamer "City of Toronto," and returned in the "Rothsay," making the round trip in 5 hours and 15 minutes; on another occasion I went in the "Rothsay" (whose speed on this occasion was 1 mile an hour less than usual), from Toronto to Lewiston, 42 miles, and returned in the "City of Toronto," making the round trip in 6 hours and 30 minutes; find the usual rates per hour which these steamers make.

6. Define a surd. What are similar surds? Simplify

$$\sqrt{12} + \sqrt{48} - 2\sqrt{3}; \sqrt[3]{56} + \sqrt[3]{189}; (\sqrt{a} - \sqrt{b})(a + \sqrt{ab} + b); (x^2 + xy + y^2) \div (x + x^{\frac{1}{2}}y^{\frac{1}{2}} + y).$$

7. Solve

$$(1) \frac{3}{x} - \frac{2}{y} = \frac{1}{a} \\ \frac{2}{x} + \frac{1}{y} = \frac{2}{a}$$

$$(2) x^2 + 5x = 5\sqrt{x^2 + 5x + 28} - 4.$$

8. Find three consecutive numbers whose product is 48 times the middle number.

9. If a and b are the roots of $ax^2+bx+c=0$ then $a(x-a)(x-b)=0$.

Show that if $ax^2+bx+c=0$ has equal roots, one of them is given by the equation $(2a^2-2ab)x+ab-b^2=0$.

10. If $\frac{m}{x} = \frac{n}{y}$ and $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, prove

$$\text{that } \frac{m^2}{a^2} + \frac{n^2}{b^2} = \frac{m^2+n^2}{x^2+y^2}$$

FRENCH.

A.—SOUVESTRE: *Un philosophe sous les toits.*

Translate:

Que de peines pour amener à bien cette moisson! Combien de fois je le verrai braver pour elle, comme aujourd'hui, le froid ou le chaud, la bise ou le soleil! Mais aussi, aux jours les plus ardents de l'été, quand une poussière enflammée tourbillonnera dans nos rues, quand l'œil, ébloui, par l'éclat du plâtre, ne saura où se reposer, et que les tuiles échauffées nous brûleront de leurs rayonnements, le vieux soldat, assis sous sa tonnelle, n'apercevra autour de lui que verdure ou que fleurs, et respirera la brise rafraîchie par un ombrage parfumé. Ses soins assidus seront enfin récompensés.

Pour jouir de la fleur, il faut semer la graine et cultiver le bourgeon.

1. Describe the *moisson* here spoken of.
2. What does the author say about the favourite objects of 'les vieux soldats'?
3. 'ne saura'—What peculiarity about this form? What other French verbs share it?
4. Give the principal parts of *verrai*, *assis*, *jouir*.
5. Change the construction of the last paragraph.

B.—DE BONNECHOSE: *Lazare Hoche.*

Translate:

Dans le mémoire qu'il rédigeait, et où il

rendait compte de ses opérations militaires sur le Rhin, Hoche descend au fond de sa conscience; il s'examine, il recherche en quoi il a pu être coupable, et les motifs de son arrestation: "Sauf le bon plaisir du Comité, écrivait-il, ma mémoire ne peut m'en fournir d'autres que mon refus de conférer avec les représentants quand j'ai cru qu'il était urgent d'agir. Est-ce là de l'insubordination? Quoi qu'il puisse m'en coûter, je resterai convaincu du mot d'Eugène: que tout général qui tient conseil de guerre n'a point envie d'entreprendre. En présence de l'occasion qu'il fallait saisir, je n'ai jamais craint d'engager ma responsabilité. J'ai toujours pensé que la plus terrible, c'est d'avoir à rendre compte un jour à l'Être suprême du sang humain qu'on aurait répandu sans nécessité et, je dois le dire, celle-là, mais celle-là seule m'a toujours fait trembler."

1. 'Opérations militaires sur le Rhin.'—Give a brief account of them.

2. What were the 'motifs' here spoken of?

3. Tell what you know of the 'Comité,' 'Eugène,' 'les représentants.'

4. Give the principal parts of *écrivait*, *craint*, *dois*, *convaincu*.

5. 'Quoi qu.' What difference between this and *quoique*?

C.—DE FIVAS: *Introduction.*

Translate:

Cependant, tandis qu'il formait ainsi son esprit par l'étude, il faut l'avouer, le troupeau n'en allait pas mieux. Les ermites, qui se moquaient des sciences, se plaignirent très-haut; l'un d'eux le menaça même de brûler tous ses livres, et joignit un geste offensant à cette menace. Valentin était né sensible, ardent; la nécessité avait plié son âme à la servitude, mais non aux insultes; il saisit une pelle à feu, met le frère à la porte de sa propre demeure, en fait autant aux autres, qui accourent au bruit, et s'enferme seul à double tour. L'ermitage est dans le plus grand tumulte. Le supérieur arrive, et demande ce que signifie tout ce qu'il voit. Valentin, placé tranquillement à la fenêtre, explique avec sincérité les torts du frère et les siens

propres, et n'ouvre la porte qu'après avoir fait accepter une capitulation.

1. Parse *s'a'isit, placé, offensant*.
2. Explain the meaning and derivation of *ermitage, capitulation*.

D.—GRAMMAR AND COMPOSITION.

1. In what different ways do you translate *some* or *any* into French? Give examples.

2. What is the difference between *cru* and *cru*; *personne*, masc. and *personne* fem.; *qui*, and *que*; *que* and *quoi*?

3. Write the rules for the plural of French nouns in *-ou* and *-ail* with the exceptions.

4. Translate into French—Francis the first, the twenty-first of May, the emperor Charles V., the year one thousand eight hundred and seventy-eight.

5. Write the second person plural preterite indicative of *manger, acquérir, venir*; the third person singular future of *mouvoir, mourir, pouvoir*; the present and past participles of *moudre, lire, pleuvoir, rire*; and the imperative of *s'en aller* and *suivre*.

6. Correct these sentences, with reasons:

- (a) L'enfant doit obéir et respecter ses parents.
- (b) Plus que deux cent prisonniers furent tués.
- (c) Il est redouté par tout le monde.

7. Translate into French:

- (a) That they might have fed the poor and cured the sick.
- (b) The house in which I live is my father's.
- (c) Alexander conquered a great part of Asia.
- (d) She is dying; do not speak to her.
- (e) "John and Mary had been living in this island twelve years, when, one day, as they were seated on the seashore, they saw several black men coming in a boat. At first Mary was afraid, and wanted to run away; but John held her back

(retenir) and said to her: Stay, sister; do you not know that God is here, and that He will hinder these men from hurting us?"

(f) "'You are dazzled!' he exclaimed joyfully, 'you were not expecting such a treasure! What do you say to (de) my bargain?'"

"'Pardon,' I replied, gravely; 'but I think you might have made it better.'"

NATURAL PHILOSOPHY.

1. Enunciate the parallelogram of forces. Deduce from it the triangle of forces.

A weight of 100 lbs. rests on a smooth plane inclined at 30° to the horizontal, and is prevented from slipping by a cord rising at 30° to the plane (60° to the horizontal). Find the tension on the cord and the pressure on the plane.

2. Show how to find the resultant in magnitude and position of two unequal parallel forces acting in opposite directions.

A uniform rigid plank, 15 ft. long, weighing 150 lbs., rests in a horizontal position on two benches, the one bench being two feet from one end of the plank, the other bench being three feet from the other end. Find the pressure on the benches.

3. If forces be represented by lines how must movements be represented? Why?

If 200 lbs. at one end of a plank balance it across a bench, 120 lbs. at the same end, when the bench is removed 2 feet, and 60 lbs. when it is removed 4 feet farther from that end; find the weight of the plank.

4. Enunciate the principle of virtual velocities.

A horse walks 150 feet, and by means of a rope and pulleys raises a weight of 1250 lbs. to a height of 18 feet. Were there neither friction of pulleys nor rigidity of cords, how many pounds would the horse have to pull?

5. Enunciate the laws of fluid pressure.

A cubical vessel, whose head inside is three inches long, is placed on a horizontal

table. Into its upper facé is let, perpendicularly, a straight tube, which rises to a height of 27 inches above the face, the internal cross-section of the tube being one square inch. Vessel and tube are filled with water. Find the pressure on the bottom of the vessel, also the pressure on the table due to the water. (A cubic foot of water weighs 1000 ounces.)

6. Describe the barometer. Explain the principle of its action.

What height of atmosphere, weighing 1.2916 oz. to the cubic foot, would balance a 30-inch column in a mercury barometer, the specific gravity of mercury being 13.596, (water=1.)

LATIN.

A.—VIRGIL, *Æneid*, B. II.

Translate into English :

Fando aliquod, si forte tuas pervenit ad aures

Belidæ nomen Palamedis, et inclyta famâ
Gloria, quem falsâ sub proditio Pelasgi
Insontem, infando indicio, quia bella ve-
tebat,

Demisere neci, nunc cassum lumine lugent:
Illi me comitem, et consanguinitate pro-
pinquum,

Pauper in arma pater primis huc misit ab annis.

Dum stabat regno incolumis, regumque
vigeat

Consiliis, et nos aliquod nomenque de-
cusque

Gessimus. Invidiâ postquam pellacis Ulixi
(Haud ignota loquor) superis concessit ab
oris,

Afflictus vitam in tenebris luctuque trahe-
bam,

Et casum insontis mecum indignabar amici.
Nec tacui demens, et me, fors si qua *tulis-*
set,

Si patrias unquam *remelssem* victor ad
Argos,

Promisi ultorem, et verbis odia aspera movi.
Hinc mihi prima mali labe; hinc semper

Ulixes

Criminibus terrere novis; hinc spargere
voces

In vulgum ambiguas; et quærere conscius
arma.

Nec *requievit* enim, donec Calchante min-
istro —

Sed quid ego hæc autem nequicquam in-
grata revolve?

Quidve moror? Si omnes uno ordine ha-
betis Achivos.

Idque audire sat est, jamdudum sumite
pœnas;

Hoc Ithacus velit, et magno *mercentur*
Atridæ.

vv. 81-104.

1. Parse the italicized words, giving the principal parts.

2. Explain the case of *ultorem* (v. 96), the mood of *spargere* (v. 98), the form *qua* (v. 94) the case of *neci* (v. 85), the figure at *ministro*.

3. 'Idque audire sat est.' What does *ia* mean here?

4. Scan vv. 102 to 104.

5. State the exact position of Argos and Ithaca.

6. Belidæ—What peculiarity?

B.—VIRGIL, *Eclogues*.

Translate into English :

I.

MEL.—Et quæ tanta fuit Romam tibi caussa
videndi?

TIT.—Libertas; quæ, sera, tamen respexit
inertem,

Candidior postquam tondenti barba cade-
bat;

Respexit tamen, et longo post tempore
venit,

Postquam nos Amaryllis habet, Galatea
reliquit.

Namque, fatebor enim, dum me Galatea
tenebat,

Nec spes libertatis erat, nec cura peculi.

Quamvis multa meis *exiret* victima septis,
Pinguis et ingrata premeretur caseus urbi,
Non unquam gravis ære domum mihi dex-
tra redibat.

I. 27-36.

Pergite, Pierides. Chromis et Mnasyllus
in antro

Silenus pueri somno videre jacentem,
Inflatum hesterno venas, ut semper, Iaccho.
Serta procul, tantum capiti delapsa, jace-
bant ;

Et gravis *attrita* pendebat cantharus ansa.
Aggressi, nam sæpe senex spe carminis
ambo

Luserat, injiciunt ipsis ex vincula sertis.
Addit se sociam, timidisque supervenit
Ægle ;

Ægle, Naiadum pulcherrima ; jamque vi-
denti

Sanguineis frontem moris et tempora *pingit*.
Ille dolum ridens, "Quo vincula *nectitis*?"
inquit.

"Solvite me, pueri ; satis est potuisse
videri.

Carmina, quæ vultis, cognoscite ; carmina
vobis,

Huic aliud mercedis erit." Simul incipit
ipse.

VI. 13-26.

1. Parse the italicized words, giving the
principal parts.

2. Explain the case of *tendenti*, *domum* in
(I) ; *venas*, *mercedis* in (II).

3. *Ingrate*—What is the meaning ?

4. Scan the first three lines of extract (II).

5. Give a summary of the contents of the
first Eclogue.

6. *Pierides*. What is the derivation ?

C.—CÆSAR, *Bellum Britannicum*.

Translate into English :

Cassivelaunus, ut supra demonstravimus,
omni deposita spe contentionis, dimissis am-
plioribus copiis, millibus circiter quatuor
essedariorum relictis, itinera nostra servabat,
paululumque ex via excedebat, locisque im-
peditis ac silvestribus sese occultabat, atque
iis regionibus, quibus nos iter facturos cogno-
verat, pecora atque homines ex agris in silvas
compellebat : et, quum equitatus noster, liberius
prædandi vastandique causa, se in agros effun-
deret, omnibus viis notis semitisque essedarios
ex silvis emittebat, et magno cum periculo
nostrorum equitum cum iis confligebat, atque
hoc metu latius vagari prohibebat. Relin-
quebatur, ut neque longius ab agmine legion-

um discedi Cæsar pateretur, et tantum in
agris vastandis incendiisque faciendis hostibus
noceretur, quantum labore atque itinere le-
gionarii milites efficere poterant.

1. Conjugate *cognoverat*, *compellebat*, *effun-
deret*, *pateretur*.

2. Point out peculiarities of inflexion in
any of the nouns in the passage.

3. How was the Roman legion subdivided

4. In your reading of Cæsar what have
struck you as being his merits as an historian
and as a general ? Refer to passages in illus-
tration of your answer.

D.—GRAMMAR AND COMPOSITION.

1. Give the rules for forming the compara-
tive and superlative of Latin adjectives, with
examples.

2. Decline together, in the singular and
plural, *senex quidam*, *perbreve opus*.

3. Give the principal tenses of *colligo*,
luceō, *tollo* and *torreo*.

4. Give the third person plural present
indicative of *moriō*, *nolo*, *prodeo*, *refero*.

5. Give the rules for the case of nouns de-
noting (a) time and (b) space, with examples.

6. What classes of verbs govern the dative
case ?

7. Give the rules for the quantity of final *a*.

8. Translate into Latin—(N. B.—The Latin
words are given below in proper order.)

Accordingly, he selects artisans from the
legions, and orders others to be summoned
from the mainland ; he writes to Labienus to
build as many ships as he could with those
legions which are with him. He himself,
although it was an affair of much toil and
labour, yet decides that the best (plan) was
for all the ships to be hauled up, and joined
with the camp in one fortification.

*Itaque ex legio faber deligo, et ex continens
alii arcesco jubeo : Labienus scribo ut quam
plurimus possum is legio qui sum apud is navis
instituo. Ipse, etsi res erat multus opera ac
labor, tamen commodus sum statuo omnis
navis subduco et cum castrum unus munitio
conjungo.*

EUCLID.

1. Distinguish between *problem* and *theorem*, *axiom* and *postulate*, *direct* and *indirect* demonstration, *converse* and *contrary* propositions.

2. (a) What is the magnitude of each interior angle of a regular hexagon?

(b) If one side of a regular heptagon be produced, what is the magnitude of the exterior angle?

3. If from the ends of the side of a triangle there be drawn two straight lines to a point within the triangle; these shall be less than the other two sides of the triangle, but shall contain a greater angle.

4. The opposite sides and angles of a parallelogram are equal to one another, and the diameter bisects it.

5. If a parallelogram and a triangle be upon the same base and between the same parallels, the parallelogram shall be double of the triangle.

6. To a given straight line to apply a parallelogram which shall be equal to a given triangle and have one of its angles equal to a given rectilineal angle.

7. If a straight line be divided into two equal and also into two unequal parts, the squares on the two unequal parts are together double of the square on half the line and of the square on the line between the points of section.

8. Construct an isosceles triangle equal in area to a given scalene triangle, and upon the same base.

9. If two straight lines, AB and CD, cut each other in the point F, and AD, DB, BC be joined, and the triangle CBD be equal to the triangle ABD, then shall the straight line drawn through F, parallel to BD and terminated by the lines CB and AD, be bisected in F.

10. Let BCD be a triangle, and F any point in BC. Construct a triangle equal in area to the given triangle, with FC for one of its sides and the angle at C for one of its angles.

11. The squares on two sides of a triangle are together equal to twice the square on half the remaining side and twice the square on the straight line drawn from the point of bisection to the opposite angle.

CHEMISTRY.

1. State the laws of combining proportions.

In one ounce of each of the following gases what weight of each element would there be:—Carbon monoxide, carbon dioxide, marsh gas (C H_4), olefiant gas ($\text{C}_2 \text{ H}_4$), acetylene ($\text{C}_2 \text{ H}_2$)?

What would be the volume of an ounce of carbon dioxide if, at the same temperature and pressure, 50 cubic inches of hydrogen weigh one grain?

2. Describe a method of preparing hydrogen. Write in symbols the reaction occurring.

By what experiments could the most important properties of hydrogen be exhibited?

3. By what experiments could air be shown to be a mechanical mixture of two gases, oxygen and nitrogen?

Give the names and symbols of the chief compounds of oxygen and nitrogen.

Write in symbols the reaction that occurs in the preparation of nitric acid from nitre, and calculate the weight of commercial nitric acid (2HNO_3 , $3\text{H}_2\text{O}$) that 337 oz. of nitre are capable of yielding. ($\text{K}=39.1$).

4. Name the allotropic forms of carbon.

In preparing carbon monoxide from oxalic acid a mixture of carbon monoxide and carbon dioxide is obtained; how can the carbon dioxide be removed?

5. Describe a method of preparing and collecting chlorine. Represent the reaction by an equation.

What are the principal properties of chlorine?

6. Describe the preparation of sulphuric acid.

How many gallons of oil of vitriol (specific

gravity 1.85) could be obtained from 111 lbs. of sulphur, a gallon of water weighing 10 lbs?

You are given two bottles, one containing sulphuric acid, the other containing nitric

acid, how could you determine which held the sulphuric acid?

7. Describe the structure of the flame of a candle.

Owing to pressure upon our columns, the Examination Papers in German, Composition, and Book-keeping, are postponed until next month.—ED. C. E. M.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

THE LINCOLN TEACHERS' ASSOCIATION held its usual half-yearly meeting at St. Catharines, on Friday and Saturday, the 25th and 26th of October. A considerable portion of the time was occupied by a Teachers' Institute conducted by Mr. James Hughes, Inspector of Public Schools for Toronto. He took for his first subject, "Mistakes in Teaching." Under this head he classed teaching while there is disorder, allowing whispering, especially in the higher classes, and a number of other common errors. He also gave some excellent hints on the Prevention of Truancy, on Object Lessons, on the Phonic Method of teaching Reading, and on Map Sketching.

On Friday evening Prof. Alex. Melville Bell gave a public reading in the City Hall. His selections were from Shakespeare, Dickens, Tennyson, Poe, Mrs. Stowe, Robert Browning, and others. This entertainment was highly appreciated, and was one of the most enjoyable features of the Convention.

On Saturday, Prof. Young, of Toronto, delivered an address to the teachers, on "Some application of Psychology to Education," which was listened to with the deepest interest. At the conclusion a resolution was passed to the following effect: "That this Convention, recognizing the special importance to teachers of a knowledge of Psychology, would hereby urge upon the Minister of Education the propriety of placing it on the list of professional subjects at the Normal Schools."—W. F. RITTENHOUSE, *Secretary*.

THE SOUTH WELLINGTON TEACHERS' ASSOCIATION held its half-yearly meeting in the Central School, Guelph, on Friday and Saturday, the 1st and 2nd of November.

Mr. G. A. Somerville read a paper on Object Lessons, closing his remarks with a

practical illustration of how such lesson may be conducted. An excellent paper on "How to Make Country Schools Attractive" was read by Miss Foote, of Bon Accord. Mr. David Boyle, of Elora, presented the Association with his report as delegate to the Provincial Convention in Toronto. The Public School Inspector for South Perth, Mr. Moran, addressed some practical remarks to the teachers on the subject of "Registers and Reports."

The remainder of Friday afternoon was taken up by Mr. G. W. Ross on "School Discipline."

On Saturday, Miss J. E. Smith read a carefully prepared paper on the "Incidentals of Teaching."

"Promotion Examinations in Public Schools" was treated by Mr. Robert Sanderson, of Drayton, after which, Mr. Ross devoted the rest of the forenoon to an explanation of how reading should be taught to a class of beginners. The President, W. Tytler, B.A., of Guelph, occupied the chair.

THE NORTH YORK TEACHERS' ASSOCIATION, held a session at Newmarket recently, Mr. Fotheringham, President, in the chair. The subjects discussed were, Writing (Mr. Fotheringham), Philosophy (Mr. Haight), and Analysis (Mr. Jewitt). The interesting feature of the session was the lecture of Mr. Richard Lewis, of Toronto, on "The Harvest and the Labourers; or the Work and Destiny of the Educator," and Mr. Lewis's address on Reading and Elocution, illustrated by examples of recitation and expressive delivery. The meeting enthusiastically endorsed Mr. Lewis's comments on the importance of Elocution as a study in the schools, and gratefully acknowledged his delightful histrionic entertainment.

CONTEMPORARY LITERATURE.

CANADIAN EDUCATION AT PARIS.

WE have been favoured with an inspection of an elaborate illustrated report of the French Commission to the Centennial at Philadelphia in 1876, by the kindness of Dr. Hodgins, Deputy Minister of Education in Ontario.* It would obviously be impossible to do more than glance lightly at the contents of this elaborate and exhaustive work in the brief space at our disposal. The volume contains nearly seven hundred pages, and is divided into thirty chapters, each of which was compiled by one or other of the six Commissioners. M. Buisson, the Chairman, in addition to other special subjects, deals with the Free School system, the co-education of the sexes, religious and ethical instruction, and High Schools, and sums up the report in his *Résumé et Conclusions* at the end. Matters of organization are treated of by M. Laporte, in four admirable chapters, on administrative organization, including school authorities, and classification of schools, financial organization, and school organization proper—one chapter on city or town, and another on rural, establishments. Under this head are grouped the rules, plan of studies, conduct and manners, directions to teachers, the employment of school-hours, methods of instruction, and finally the discipline and incentives to emulation. M. Berger's subjects are school-houses and school furniture (fully illustrated), early education—infant schools, Kindergartens and primary schools, and instruction in grammar and drawing. In a later portion of the work the same gentleman deals, in two chapters, with normal schools and teachers' examina-

tion, with school inspection. Reading, writing, geography, history, arithmetic, mathematics, including book-keeping, algebra, geometry and geometrical drawing, physical science, song and music, and gymnastics, each forms the subject of an exhaustive chapter. Private schools and auxiliary institutions also come in for special attention.

The great pains taken by this Commission in the matter of statistics is exceedingly note-worthy, and the engravings, *jac-similes* of school lessons, and views of school-houses, are unexceptionable. In attempting an exposition of the American school system, Canada naturally appears somewhat dwarfed by the over-powering shadow of its great neighbour. Nevertheless, ample justice is done to the Dominion whenever opportunity offers. Two of the Commissioners visited Canada, and examined, for themselves, some of its towns and rural districts in Ontario, and the two chief cities of Quebec, "where they received a welcome of which they preserve the most grateful recollection." Our urban school-houses "of pressed brick, with stone pilasters and slated roofs," are specially referred to, and the admirable work of Dr. Hodgins on "School Architecture," receives particular attention. "On the different matters relating to the choice of sites and materials, to the arrangement of the buildings, and to the best models of benches, blackboards, etc., one may find here the most complete instructions. We have nothing so complete in France to direct those who desire to establish in the country school-houses in all respects suitable. Mr. Hodgins is well acquainted with all that has been done in the United States, and he has selected with discretion all he has fallen in with, which appeared better or susceptible of improvement." M. Berger goes on to the subject of light,

* *Rapport sur l'Instruction Primaire a l'Exposition Universelle de Philadelphie en 1876. Présenté au Ministre de l'Instruction Publique au nom de la Commission envoyée a Philadelphie, par F. BUISSON, Président de la Commission. Paris: Imprimerie Nationale, 1878.*

ventilation, and warmth, to the normal school and its arrangements—all of them alluded to with words of praise. At p. 380, reference is made to the School of Practical Science; and at p. 392, there is a warm eulogy upon the merits of Canadian teaching and its elaborate appliances; and above all, Toronto, "a city justly celebrated for its scholastic institutions." The gymnastic apparatus exhibited are specially noted at p. 449; whilst at p. 503, there is an account of the visit of M. Buisson, in company with Mr. J. H. Smith, Inspector for the County of Wentworth, to the High School at Waterdown, where he was agreeably surprised to find in a building of modest appearance, "scholars of both sexes, of from fifteen to eighteen years, occupied in translating a page of the *'Æneid!'*" "Under this admirable system," adds the President, "the families of farmers have no cause for envying the inhabitants of the towns and cities."

It may be added, that much of the volume which refers to the schools of the Union is equally applicable to our own; indeed, Canadians flatter themselves that where they have copied, they have taken care to improve upon the examples, and that in many important respects, they have struck out an original path for themselves. The volume which we have noticed so briefly, is an extremely valuable one on many accounts. It may enable instructors to see themselves as others see them, who live under diverse conditions. There is much that is suggestive in the intelligent observations of the Commission, and there is abundant proof there of new life and intelligence in a regenerated France.

PRINCIPLES AND PRACTICE OF TEACHING.

By James Johonnot. New York: D. Appleton & Co.; Toronto: Willing and Williamson.

This, one of the latest additions to the literature of professional education, emanates from Ithaca, N. Y., and on the whole, is well worthy of perusal. The author's endeavour has been, as he says, to examine education from the standpoint of modern thought. His aim is an ambitious one, and having led his readers to expect so much, it is his own fault

if the result is somewhat disappointing. To state concisely the well settled principles of psychology is a task so extremely difficult and demanding such special qualification, that it is no matter of surprise if Mr. Johonnot has on the whole failed to make his sketch practically of much use to teachers. A little knowledge of metaphysics is a dangerous thing, and the teacher who will get his only knowledge of the subject from the book before us will not add much to his equipment, while he who is well read in metaphysics will probably skip the pages. Again "a connected view of the interdependence of the sciences" turns out to be a short chapter of twenty-two pages of which more than half consists of a meagre sketch of the life and work of Agassiz. The great educational reformers consist for Mr. Johonnot of Pestalozzi and Fröbel. We cannot account for his utter silence with regard to Samuel Wilderspin the founder of systematized and sensible Infant Education. Surely no work of this kind should have omitted mention of the man who introduced gallery lessons, popularized object teaching, and above all, brought into the foreground of thought the subject of moral training in the playground and school. Wilderspin's works were translated into German, and the translator thanked by the Prussian Parliament, years before Fröbel borrowed his ideas, and with real benevolence entered upon the same path, although the dreaminess and want of ruling common sense of the German educator have given a tinge of absurdity to the otherwise charming *Baby-Garden*.

Mr. Johonnot's chapter on Physical Culture is well written and valuable, as also is the following one on *Æsthetic Culture*.

We disagree with him in excluding the study of foreign languages from all but the academic course; and we rise from the perusal of his scheme of study with a conviction that in his effort to be practical he has only encouraged that superficiality which is the bane of American schools. It needs to be borne in mind, especially in this country where the active work of life begins so early, that gymnastics are the most important part of the education of children. The muscles of the mind as well as those of the body must be

strengthened by scientific training; and the child who has been taught how to *learn* will acquire specific knowledge in the great school of the world. The more spontaneously knowledge is acquired in childhood, the better; and the attention of the true teacher will be directed in the first instance to developing the mental powers and strengthening the faculties of attention, observation, and memory, rather than filling the child's stomach with crude indigestible meals of hard-cornered, miscellaneous facts. There is a touch of pharisaism in Mr. Johnnot's avowed preference for an ignorant teacher who does not smoke over an intelligent teacher who does; but doubtless the ruling fashion in American religious society which has concentrated its repressive energies on whiskey and tobacco, and is before all vicariously virtuous in the persons of its ministers and teachers, is accountable for this. On the whole the intelligent teacher will find in Mr. Johnnot not by any means a guide to be blindly followed, but a pleasant and often a suggestive companion. We commend his book to their notice: it is well worth its very moderate price, and the time which will be occupied in its persual.

HISTORY PRIMERS.—*Europe*, by E. Freeman. Toronto: James Campbell & Son.—*Greece*, by C. A. Fyffe. London: Macmillan & Co.—*Roman Antiquities*, by Prof. Wilkins. London: Macmillan & Co.—*Canada*, by J. F. Jeffers. Toronto: James Campbell & Son.—*Geography*, by Geo. Grove. London: Macmillan & Co.—*Classical Geography*, by H. F. Tozer. London: Macmillan & Co.

The series of Primers which are being produced under the able editorship of Mr. J. R. Green, the well-known author of the "History of the English People," deserves a very considerable amount of praise, and will, doubtless, receive a very considerable amount of patronage. Handy and compact in size (the first on the list, which is the largest, containing only 150 pages), well and clearly printed, and strongly put together in neat covers, they bid fair to be deservedly popular among both teachers and pupils. If their contents are not, in all cases, of equal merit, they at least keep up to a decidedly high aver-

age standard of excellence, and in some instances, as we shall presently see, attain a position unusual among merely elementary treatises.

To go over them in detail would be no light task. In the first work on our list, for instance, Mr. Freeman has, with commendable diligence, "boiled down" the history of Europe from the days of Aryan immigration to those of the Ashantee war, into a sort of essence, resembling ordinary history in much the same way as a spoonful of Leibig's extract of meat resembles a dish of vegetable soup. How, then, can any reviewer do justice to such a subject in as many lines as Freeman has pages, especially when five other authors all clamour for recognition within the same narrow space?

Although Mr. Freeman is a clever man and a great scholar, he, like others, occasionally "naps." At p. 63, speaking of the dual division both of Christians and Mahometans in the days of the Eastern and Western Empires, and the Omniad and Abbasside Caliphates, he says that "each of the four powers was an enemy of the more distant power of the other religion, and a friend of the nearer one."

The very reverse is the fact. The Christians in the West of Europe naturally and inevitably fought a bitter fight against their immediate neighbours, the Moors of Grenada and of Africa, and were on comparatively friendly terms with the unobtrusive Caliphs of Bagdad. Mr. Freeman himself shows the true state of things on the same page, and it is matter of wonder that such an oversight should have escaped his editor's notice.

We cannot refrain from noticing the vast change that has come over the spelling of proper names since we were boys; for, strange as it may seem,—even a reviewer was once a boy. C, which used to be a pretty hardly-worked letter, has quite a holiday now-a-days, and K, especially in Greek names, has come to the front with a vengeance. Our old friend King Pepin, is touched with a conjuror's wand, and lo! King Pippin usurps his place. There is, however, some lack of rule among the new lights of the spelling-world, for even Mr. Green cannot get all his authors to spell Dido's chief city

alike. With one it is *Karthage*, with another it is still *Carthage*. The saddest blow, however, is that our old friend Virgil has been re-named Vergil.

Mr. Freeman succeeded in cheating us by the title to his 13th chapter, "The re-union of Germany and Italy." We turned eagerly to the end of his book, where this heading occurs, to see if he was indulging in any reactionary prophecy as to the re-conquest of Italy by Austria. No! he speaks of the "joining together of the German and Italian nations" as an accomplished fact. We were for a moment nonplussed, until we gathered from the context that what Mr. Freeman meant by this very clumsy expression was the welding of the scattered German principalities into *one*, and the amalgamation of the divided Italian kingdoms into *another* nationality, and not by any means a fusing of those two nations into one, as his words imply.

Mr. Fyffe's *Greece* is a masterly condensation of that entrancingly interesting history, which, whether we study it in detail, or, as here, in outline, never fails to rouse our deepest feelings of admiration and of pity; admiration for the Greek of the past, regret for the Greek of the present. But we must pass on to Prof. Wilkins's extremely interesting little primer on *Roman Antiquities*. It is, we are persuaded, by studies such as those which he puts before us, rather than by cut-and-dried accounts of battles, conspiracies, murders, and kings, that boys are most easily interested in the events of the past. To tell a boy to be curious about the fate of such a Consul or such an Augustus, the sole object of whose existence seems to have been to inflict on the student two, or perhaps if very celebrated, three more dates to be got by heart, is a hopeless task. It may well be believed that most boys, lads that are of ordinary thickness of skull, and no particular force of imagination, utterly fail to realise that any particular Roman hero was actually a man who walked about this world as the schoolboy's big brother now does; but take that schoolboy, as Prof. Wilkins does, into the Forum, or into the steaming bathroom, or out on the Sabine hill-farms among the grey olive trees, or better still, jostling among

the crowd at the circus, or picking out a soft stone to sit on and watch a wild-beast fight from, and the *reality* of the past breaks in upon him at once. He will grasp the individuality of the old Roman, will understand that his life was made up of long days and years like our own, not a brief span such as one would gather from the lives devoted to his history in the ordinary text-book, and forthwith the lad wishes to know more about him. In this spirit how easy it is to lead him on, and with what interest will he trace out in his *Cæsar* or his *Horace* those habits and traits of character which he has learnt to comprehend and to appreciate.

From Rome to Canada is a long step. Mr. Jeffers's work does not seem to have had the benefit of Mr. Green's editorship, but we cannot say that any lack of care is shown on that account. Some faults there are, no doubt, as where (on p. 6), in the desire to point the antithesis between the America of 400 years ago and the America of to-day, the author states that the Indians were then its only inhabitants, and their wigwams formed its only cities. It may spoil the contrast between such a state of things and the present wealth of New York or Toronto; but all the same, we must remind Mr. Jeffers that the Aztecs had attained no mean height of civilization, and no small mastery over the arts and applied sciences when the Spaniard first set foot within their walled cities, and pillaged their magnificent temples and palaces. The book, of course, steers clear of all political remarks,—but in its anxiety to show perfect impartiality, omits to mention the present party-lines, or to show how they arose, or to which of the two great parties we owe measures of national importance. There is a curious phonetic table at the end of the last chapter, purporting to assist the student to pronounce the French names which occur in the history. Although well-intentioned, we would advise that the page should be carefully cut out before the book is put in pupil's hands. If the French master got hold of it, he might destroy the whole book when he found "Jacques Cartier" pronounced "Zhak-Cart-ya."

Mr. Grove's *Geography*, and Mr. Tozer's

companion-work on *Classical Geography*, can be dismissed with shorter comment. Both are carefully written;—the first is well illustrated with explanatory maps and diagrams, —the latter is, if anything, a little too de-

tailed for the elementary purpose for which it is intended.

We reserve till another time the review of the kindred series of Primers in Literature and Science.

EDITORIAL NOTES.

TOPICS OF THE TIME.

IN perusing the handsome volume, just issued from the press of Mr. Lovell, of Montreal, on the "History of Lord Dufferin's Administration in Canada," no feature of his Excellency's interest in the affairs of the Dominion is more noticeable than the eager and enthusiastic manner in which he manifests his solicitude for the progress of education in the country, and his sympathy with every department of its work. In the admirable commentary running through the book, upon the varied subjects which interested his Lordship, in his successive tours through Canada, again and again does the editor, Mr. Leggo, refer, and with as oft-recurring satisfaction, to the impetus given to education by Lord Dufferin's hearty recognition of its value as a factor in the development and elevation of our people. A scholar himself, and a man of the broadest and highest culture, his intense interest in the mental equipment of our youth, and his encouraging words to those engaged in the work of education, were the result of his own wide and generous appreciation of every form of human knowledge. Readily as he sought the occasion to belaud learning, and munificently as he encouraged in others its pursuit, he yet never paid to it the mockery of a hollow compliment, or uttered a word in its behalf for mere effect. If, at any time, he indulged himself in the exhibition of his own accomplishments as a scholar and classicist, it was from no motive of pedantry, but rather from a desire to pay a marked tribute of respect to those who honoured him. In this, however, he but emphasized the effect of his own words on

behalf of a liberal education; and, by the grace and brilliancy of his utterance, manifested the advantage to be derived from a classical training. But the sincerity of his purpose to be of service to education, in any words he addressed to those interested in it, finds readiest evidence in the wise counsel he gave to the youth of both sexes wherever, in school or seminary, he came in contact with them. Nothing can exceed not only the felicity and tact of these addresses, but the admirable appropriateness of their varied homilies on life and manners. Many of these will be recalled with pleasure as illustrations of happy turns of speech, and the monitions of a courtly but shrewd and keen-sighted observer. Those specially referring to the qualities that refine the life, and stamp with the symbols of gentility the budding youth of the country, cannot be too frequently recurred to, or their hints too deeply impressed upon the mind. The addresses to the pupils of the Young Ladies' College, Brantford, McGill Normal School, Laval Normal School, and the Loretto Convent, Toronto, are particularly worthy of note in this respect, while those delivered to the students of the various Colleges and Universities visited by his Excellency, are equally notable for their wisdom and their impassioned appeals to the pursuit of an intellectual life. As Mr. Leggo remarks, "Lord Dufferin was never a formal visitor at any of our educational institutions," and the substantial stimulant of his generous medal-awards to promote proficiency in studies, indicates the personal interest he had in their work, and the practical means he took advantage of to further their success.

But however solicitous he was to encourage a high degree of proficiency in the pupil, and to incite to the attainment of a broad and generous scholarship, he never lost the opportunity to inspire our youth with the desire for that more subtle culture which elevates and refines the life, and gives an intensity of pleasure to its pursuits and enjoyments. This aim runs like a golden thread through all his speeches, and places a priceless value upon his words. To call into exercise, in the daily contact of the school, those finer instincts of our nature is a work much needed in our midst, and it should not belong to a rarer species of school-husbandry than the present race of Canadian educationists assiduously to elicit it, and permanently to give it expression.

THOSE who laud, and properly laud, the efficiency of the educational system of Canada must, we fear, learn to speak of the country they eulogize in a somewhat local sense, referring particularly to the Province of Ontario and to the Maritime Provinces. That the Province of Quebec, at any rate, should be excluded from a share in the compliment is, unhappily, but too apparent, if the state of Elementary English Education, in the country parts of that Province, is to be taken as a criterion of excellence. At the recent Paris Exposition, it was specially noticed by French Educationists that that portion of *la belle Canada* inhabited by the people of their own race and language, the Quebec Province, had little share in the honours won for the Dominion by the exhibit in the Canada Educational Court. But the shortcomings of the Province and its French-speaking inhabitants in failing to take part in representing Canada's Educational interests at the Exposition, are trifling in comparison with the apathy manifested at home in the Province, by their English-speaking compatriots, towards the cause of education. At the Annual Convention of Protestant Teachers of the Province, held recently at Bedford, in the Eastern Townships, the condition of affairs in connection with primary education was stated to be most deplorable. The ex-

planation of this is readily enough found in the fact that the salaries paid to the teachers are criminally inadequate to the providing of competent men to take charge of the schools. A further explaining cause is found in the statement, made upon undoubted authority, that not only are the salaries miserable pittance in themselves, but that the teachers—in most instances females—have to submit to the degradation of receiving their remuneration in the set-off form of "board," and this on the vile peripatetic principle. This pinched and starved recognition of education, we are told, extends over a large area of even the oldest and richest counties of the Eastern Townships,—the salaries only ranging from \$7 to \$12 per month, and board,—the board being from house to house weekly! Who are really responsible for this blot upon Canadian civilization we cannot say, but the disclosure of such facts flush the face with shame for the greed or ignorance of the community that supinely permits such a state of things to exist. The disproportionate number of English-speaking children in the province, and scattered, as they are, over a wide area, of course, makes it difficult to organize efficient machinery of instruction for their wants, and our miserable sectarian prejudices unhappily stand in the way of co-operation with the French inhabitants to secure any good system of education. No circumstances, however, can well excuse the utter lack of appreciation of what ought to be the priceless services to the community of an experienced, cultured, and capable corps of teachers, with a recognized status corresponding to the dignity and importance of the high duties of their calling. It would, perhaps, be unjust, while we are ignorant of the whole facts, to attach blame in this matter to the Protestant Committee of the Council of Public Instruction of the Province, but they cannot be quite absolved from some share in the responsibility for so discreditable a state of things.

MR. MATTHEW ARNOLD has a paper in the November Number of the *Fortnightly Review*, entitled, *Porro Unum est Necessarium*, calling

for increased attention to the subject of middle-class education in England, and going into dithyrambs over the alleged superiority of intermediate education in France. It is rather too much the fashion to speak deprecatingly of the systems in vogue in one's own country, and unreasonably to bespatter with praise those that are of foreign growth. We are not sure but that Mr. Arnold makes this mistake, for, taking class for class, we incline to think that the British youth is as well catered for, in the myriad Grammar schools of England, as his French cousin is, in his numerous *Lycées* and *Colleges Communaux*. And as to their respective standards, particularly since the Private Grammar Schools of England have opened their doors to the Government Examiner, there is little cause we think, for extravagantly eulogizing the French system at the expense of the English. Mr. Arnold's opinions upon Education matters, however, claim the highest respect, and the paper deserves thoughtful perusal.

EDUCATIONAL MATTERS ABROAD.

IN a practical era like the present, no branch of public education can be so important as that which has for its object the extension of natural knowledge, and the furtherance of the means of acquiring a technical education. In adding to the resources of our material civilization, no department of educational work will be more productive of substantial results; and it is to be hoped that in Canada a greater interest will be taken, than as yet has been the case, in such institutions as the Toronto School of Practical Science, and the other machinery of a practical education which exists in the country. City Industrial Schools and evening classes, for giving instruction in popular science, should be more heartily encouraged over the Dominion, so that Canada may still hold the high place which her general educational system has won for her. How keenly alive to the importance of practical studies in their educational systems the people of other nations are, the following brief synopsis of a lecture recently delivered in London by Sir Charles Reed, the present Chairman of the London

School Board, will indicate. The subject was "Technical Education as Illustrated by the Educational Department of the Paris Exhibition." Says the report, "Sir Charles took the different countries one by one, and gave a concise account of each national section, highly praising the system exemplified by Canada. Belgium, too, he praised for its attractiveness and instructiveness, the school-room shown by this country being indeed a model. Denmark has given proof of the value of instruction in home industries, and seems to have taken up the uninterrupted thread of Kindergarten teaching, so as to carry it into adult life. The education of the Danes has spread from Copenhagen into every small village of the country, and there are schools everywhere. Italy shows chiefly drawings, those from Milan, Turin, and Rome being, as might be expected, excellent. In this kingdom the Kindergarten system seems to have taken a firm hold. Japan's educational advance was spoken of by the lecturer as perfectly wonderful. There are seven grand school-districts arranged on a complete communal plan. The foreign-language schools have had a truly immense influence throughout the country, and it is a fact that every educated Japanese speaks English, generally with perfect accuracy. Russia displays evidence of surprising progress, her schools of design and women's workshops having become quite prevalent. Finland, for the first time, makes a very simple, homely exhibition, which gives proof of great work. In Norway, education is now almost universal, and the evidences at Paris are very striking. The school-house in the Swedish department is admirable, and the work of the Beehive Society, in employing young women, is excellently illustrated. The Swiss is a most modest and interesting display, the cantons being united and under the motto, 'All for one.' It is remarkable that more girls than boys are under education in Switzerland. Spain has made great advance, her schools of industry having multiplied of late. China has followed Japan to some extent, showing a scholarly refinement, but not such effective work. On Egypt a light seems to have broken, and schools are spreading on the banks of the Nile. Brazil owes much to Dom Pedro, who has turned to good account his observations at former exhibitions. Chili has made astonishing progress; and the work of boys and girls, in the Mexican section, is alike admirable. The Netherlands' exhibition is excellent, the artizan schools of Rotterdam and Amsterdam having wonderfully improved. This kingdom makes the best show of school-books. Hungary is ahead of Austria in education,

the Empire having, in fact, made no advance since the Vienna Exhibition. 'England,' said Sir Charles Reed, 'would make a great mistake if she thought herself at the head of the world in educational matters. We have set ourselves to amend the mistakes of past generations, but the success hitherto achieved is not brilliantly demonstrated, in competition with other countries, at the Paris Exhibition.'

THE wealthy Livery Companies of London, England, have begun to move in the work of founding institutes for the advancement of Technical Education in the Metropolis. At a meeting held recently at Mercer's Hall, the great London Guilds decided to endow a central Institute for the purpose of affording to the London apprentices facilities for instruction in the arts and mechanical sciences; and already about \$100,000 has been subscribed. Liverpool also is moving in the effort to found a college for higher education in the great commercial seaport of England; and already some progress has been made in making provision for a large and efficient teaching staff.

BRIEFS ON NEW BOOKS.

The Law and Official Regulations relating to Public School Trustees in Rural Sections, and to Public School Teachers (including decisions of the Superior Courts thereon), as prescribed for Second and Third Class Provincial and County Certificates of Qualification, by J. Geo. Hodgins, LL.D., Barrister-at-Law, Deputy Minister of Education. Toronto: Copp, Clark & Co. *Revised edition, 1878.* This useful work embodies the substance of lectures delivered to Normal School students, at Toronto, which the legal training and lengthened experience of school law matters enabled Dr. Hodgins to prepare for their use. They now form a manual of school law of great utility, and the revision has enabled the author still further to illustrate the official regulations in force by embodying an ample selection of the decisions of the Superior Courts, in cases of difficulty which have been decided by the Judiciary. An extensive index completes the great service Dr. Hodgins has rendered to teachers

and school authorities in the publication of the work.

Greene's Graded Language Blanks. Greene's Graded Grammar Blanks. Boston: Potter, Ainsworth & Co.; Toronto: James Campbell & Son.—These admirable copy-book blanks mark 'a new departure' in our systems of teaching writing. The conventional maxim or proverb which has so long done duty in the head lines of our copy-books is here displaced by a series of (1) Easy Lessons in Expressing Thought, (2) In Combining Thoughts, (3) In Developing Distinctions, and (4) In Distinguishing Forms—in written speech. Penmanship thus becomes not only an exercise in the art of making accurate and well-proportioned letters, but a useful lesson in the construction of a sentence, and a helpful aid to the spontaneous and natural expression of thought. To facilitate the acquirement of an easy and legible style of hand-writing with fluency and accuracy of expression in the language, is a laudable and desirable work, and we heartily commend the series as an intelligent and practical means in accomplishing this combined result. The Grammar Blanks consist of (1) Etymology, (2) Syntax, (3) Parsing, and (4) Analysis, and furnish a series of exercises in writing, with the advantages of a special drill in grammar. Every schoolmaster should see them.

Milton's Paradise Lost, Books I and II, with Notes, by John Seath, B.A., St. Catharines. (Toronto: Copp, Clark & Co.)—*Goldsmith's The Traveller, a Poem, with Notes,* by Wm. Williams, B.A., Collingwood. (Toronto: Jas. Campbell & Son.)—The publication of these text-books is a gratifying indication of the increased attention given to the study of English classics in Canadian schools. In no department of educational work was there more need of this attention than in the critical study of English literature. As an aid in acquiring ease and style in written composition, the analysis of the structure of these classics of the language cannot but prove of great value, while familiarity with such authors as Milton and

Goldsmith can hardly but be a pleasure and delight. The critical work, in both instances, is creditable to Canadian scholarship and industry.

Swinton's New Language Lessons: An Elementary Grammar and Composition. Toronto: James Campbell & Son.—As an introductory work on the construction of our mother tongue we have met with nothing superior to this book. It is not only easy and progressive in its plan, but, mechanically, the book is most attractive and inviting—a great matter with a generally repulsive subject. For use in elementary classes in grammar and composition we esteem it specially well-suited. It is not over-loaded. The definitions are brief and pointed, and the exercises excellently illustrate the rules. There has hitherto been no greater desideratum than a simple and rational text-book on English Grammar; and if the language is to be spoken and written correctly, and with intelligence as to its form and structure, we know of no manual that will better help pupil and teacher alike in mastering the difficulties that surround the study of the subject than the present improved edition of Swinton's Language Lessons, issued by the above firm.

Steel's Fourteen Weeks in Physics. New York: A. S. Barnes & Co.—The subject of Physics is in this work treated popularly, after the manner of Peck's Ganot. The teacher in search of matter to interest a class, will here find abundant and good material. The illustrations are a great aid to the text, and highly increase the attractions of the work.

LITERARY, SCIENTIFIC, AND ART JOTTINGS.

SCIENCE has oft-times its most earnest votaries in the humblest walks of life. Mr. Smiles has recently given us a memoir of an enthusiastic naturalist in Thomas Edwards, the shoemaker of Banff, a work which has gone into its fifteenth thousand in England, and earned for the subject of the biography a

pension of £50 from the English Civil List. Now we have from the same source, a life of Robert Dick, a baker of Thurso, an humble and unobtrusive geologist and botanist. Scotland has evidently determined that her race of Hugh Millers shall not yet die. It would be curious to trace how much these humble disciples of Science owe the inspiration of their work to the plodding industry and enthusiasm of the author of "The Old Red Sandstone," and "My Schools and Schoolmasters."

THERE is much entertaining and instructive reading in the serial volumes which the end of the year brings to hand. The new volume of "The Leisure Hour" (London: Religious Tract Society; Toronto: John Young,) has interesting papers, in addition to a vast variety of excellent reading matter, on the following subjects, viz., "Utopias; or Schemes of Social Improvement," a resumé of socialistic movements and theories, from More's Utopia down to Karl Marx and the *International*; a series of illustrated papers, on The Public Schools of England; "The Chemistry of the Heavenly Bodies"; and a group of essays on "Practical Social Science."

A COLLECTED volume of "Lectures on Education," delivered before the members of the College of Preceptors, London, in the year 1871, and published by order of the Council, has lately been issued. The title of their subjects will doubtless interest our readers: The Science and Art of Education; The Teaching of the English Language; of the Classics; of Arithmetic; of Physical Science; and of Chemistry. The volume is published at 3s. sterling.

THE fifth sessional address of the President (Mr. Serjeant Cox) of the Psychological Society of Great Britain has just been issued from the offices of the society, in pamphlet form. The subject for this year was "The Claims of Psychology to admission into the Circle of the Sciences."

THE Hibbert lectures delivered last spring by Prof. Max Muller in the Chapter House, Westminster Abbey, are announced for publication in an octavo volume of 400 pages. Their subject, it will be remembered, was

"The origin and growth of Religion, as illustrated by the religions of India."

A SERIES of Shilling Manuals, under the title of "Health Primers," are being issued by a London firm (Messrs. Hardwick and Bogue) embracing the subjects of Premature Death; Alcohol—its Use and Abuse; Exercise and Training; The House and its Surroundings, etc. The same house announces, in similar popular form, manuals on The Sight and How to Preserve it; Science made Easy; and a volume entitled, Common Mind Troubles. As the title of the latter might be taken to mean either the troubles of a common mind, or mind troubles of a common kind, we transcribe the titles of some of its chapters, viz., Defects of Memory, Confusions of Thought, Hesitation and Errors in Speech, Low Spirits, Temper, and The Creatures of Circumstance.

MESSRS. Chatto and Windus, London, have just ready two interesting volumes of collected lectures and papers; the one by Prof. R. A. Proctor, on, "Pleasant Days in Science," and the other by Dr. Andrew Wilson, on "Leisure Time Studies, chiefly Biological." They are for sale by Messrs. Hart and Rawlinson, Toronto.

THOSE who have been interested in Kiddle and Schem's useful "Cyclopædia of Education," and who are 'at home' in the French language, should know of the "*Dictionnaire de Pédagogie et d'instruction primaire*," now being published by Messrs. Hachette, of Paris, under the editorship of M. Buisson, with the assistance of the leading educational functionaries of France. Part 22, (Camarades-Charbon), has recently been received in this country, containing an admirable summary of the Educational Systems of Canada rendered into French, from the pen of Dr. Hodgins, Deputy Minister of Education. The aptitude of the French people for Cyclopædic work has always been a notable fact, and the "Dictionary of Pedagogy" is a further illustration of their skill and industry in this respect.

THE Rev. Alfred J. Church, head master of King Edward's School, Retford, England,

has just issued a volume of "Stories from Virgil," with charming illustrations from Pinelli's designs, in the colors and style of Etruscan decoration. The author's previous volume, "Stories from Homer," with colored illustrations from Flaxman's designs, will be remembered as an attractive volume, mechanically, as well as a scholarly and effective rendering of Homer's verse, preserving the action and spirit of the poems with special success. For sale by Mr. A. Piddington, Toronto.

THE famous "Autocrat of the Breakfast-table," Dr. Oliver Wendell Holmes, has just prepared a biography of John Lothrop Motley, the Historian of the Netherlands, which is about to appear. A richly illustrated holiday edition of the Autocrat's latest "effusion in verse," "The School-Boy," a poem read recently at Andover, has just been brought out by Messrs. Houghton, Osgood & Co.

MR. WARWICK, Publisher, of Toronto, has in press a work from the pen of one of our best philological scholars, Mr. J. W. Connor, B.A., of Berlin, which promises to be of great practical use as a text-book in our schools. The subject is Etymological Exercises; and from the advanced sheets we have seen of a portion of the work, we should judge it to be an admirable aid to the critical study of the language.

WE have received from Messrs. Willing & Williamson, Toronto, their new Educational Catalogue, comprising new and standard text-books and works of reference in Classics, Languages and Literature, Mathematics, Arts and Science. It is a perfect cyclopædia on "the bibliography of Education, and will be found of great service to the profession. From Messrs. Copp, Clark & Co., we have the annual issue for 1879, of the ever-useful "Canadian Almanac," replete with statistics and handy facts. The *Quarterly Magazine*, published by the Literary Society of the Hamilton Collegiate Institute, has also been received, and deserves notice, which we are compelled to defer to another issue. The Kingston Collegiate Institute *Herald* has also been courteously sent to us.

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

FEBRUARY, 1879.

THE PROMOTION OF CULTURE.

BY THE EDITOR.

THE not unreasonable expectation of those who closely and interestedly watch the result of educational work in Canada, is, that it shall largely contribute to the public culture, and be successful in elevating the tastes and refining the life of the people. In the cities, and in the older and more thickly-settled portions of Ontario, at any rate, is this influence expected to be at work. In the country towns, also, though Canada by a high authority is said to be "raw, rough, and democratic," there is an inviting field for the operation of the meliorating and refining influences of education. To a large portion of our people, in these sections, education means more than the acquisition of a few elementary facts, and such mental training as will enable our youth to cipher and to read. Even in the rural districts, except, perhaps, in the case of the settlers in the remote townships of the Province, and among the In-

dians, the demands upon education are ambitious ones. With no benighted labouring class in Canada, corresponding to the "Hodge" of the motherland, education has not to waste time upon uncouth and unpromising material. Hence, there is not the necessity to lower the plane of our primary education to that of his midnight ignorance. This advantage in our favour, we begin our educational work at a higher pitch, though the height we reach at the finish should be correspondingly elevated, and the results looked for those that mark the fulfilment of a great expectation. How far we realize these expectations is fair matter for thoughtful consideration; though, perhaps, we will save ourselves some trouble if we frankly confess that our realization of them is very imperfect. We have the machinery of education, the shafting, the belting, and the motive power,—and the work all goes on,

from the bottom of the system to the top, with gratifying industry and admirable method. But to a great extent, we fear, it is machine work, marked with the materialism of routine and the inelasticity of mechanism. The work, of course, is turned out; but it is done too much in the temper of uniformity, and in the methods of a lifeless system. We have the body of educational work without its energizing and liberalizing life,—the form but not the fruit. Even in the highest sphere of its operation, our university work is done in the flats and monotones of professional duty, and rarely rises above the minor notes of enthusiasm. The modern intellectual movement may be an aggressive force in the lecture rooms, but little of the atmosphere of culture exhales from its halls. It would be unjust to say that there is mental rust, but there would seem to be a solstice of contentment and acquiescence unindicative of vitality and unfavourable to progress. The cold temperament too largely prevails, and work is not wrought in the energy and with the enthusiasm that should mark the achievement of a National University. Here, and at its highest development, our educational machinery, much as we may justly boast of it, is not altogether satisfying. Within the doors of the University, no doubt, there is scholarship, learning, and much honest work done, but it is a silent, unaggressive work, awakening little public interest, arousing less enthusiasm, and stirring no passion. Its contribution to the promotion of public culture is, therefore, not noticeably important.

Descending the scale of our educational system, it ought not to be wondered at, that, where the flame is not at the top, the fire is not over bright beneath. Fortunately, however, in the Collegiate Institutes and High Schools, we come upon institutions whose sources of life and main-

tenance are largely contingent upon individual activity, and professional ardour. In these institutions, moreover, competition and rivalry, in addition to the master's ambition, produce healthy and active life. But even here, the cramping influences of a purely professional occupation are visible, and individuality of effort and ambitiousness of aim are often shrouded in the winding-sheet of departmentalism. Programmes, inspections, examinations, and school routine, are not the inspiring subjects of a teacher's work, nor do they preach the gospel of the intellect to the hungering pupil. Here and there individual enthusiasm and force of character, if they do not throw off the shackles, mitigate the evil effects of their imposition, and education has a chance to show its work. At the best, however, while from University and from Department there come not the inspiring breezes of vigour and enthusiasm the influences of these institutions cannot be all that they might be, and their promotion of culture is not assisted.

In the Public Schools we do not expect education to soar into the region of culture, but much might here also be gained if that robust capacity for work which distinguishes the labourer in the Model and Public Schools of the country were softened by its genial humanities. The tone of the schools might be largely raised, and the tender and plastic nature of the young minds under training be directed into sympathy with the noble and the elevating. Relieved of much of the red-tapism which hampers the work of the High School teacher, the masters of the Public Schools have more opportunity to make individuality tell in the conduct of the school, and of encircling the sphere of their work with a bright zone of cultivation and refinement. But the Public School teacher will accomplish much

if, reverently and sympathetically, he endeavours to preserve the freshness and ingenuousness of childhood, and, by the influence of his own example, while leading the pupil up the golden ladder of mental acquisition, he encourages the cultivation of those graces of life which are the best adornments of youth. Stepping out of the schools, we look expectantly to the professions for evidence of sympathy with culture, and for practical results in its promotion. As professions, we find, of course, the conventional admission of its claims, but few organized efforts in its behalf. In Law, perhaps from the fact that the social status of its members is more favourable to its unselfish pursuit, the recognition of culture is more general. The dignity and learning of the Bench fortunately, also, give it large countenance. The Clerical and Medical professions on the other hand, do not, as professions, give practical encouragement to its promotion. The former, in neither its professional curriculum, nor in its Church Assemblies, encourages that benignant breadth of tone favourable to its existence. As a class, moreover, "the peril of committing themselves" is too characteristic of the profession to give aid to its expression, while the asperities of religious controversy too often drive culture from their midst. Among ministers, as among doctors, culture has, individually, to look for that generous, eager, and ambitious life which woos it to a home, and for that student-temper which, in the circle of its influence, best promotes it.

That among the commercial classes, and the trading community of the country, little is done to advance public culture has always been a matter of reproach; and with that little there is the disposition still to do less. Years ago, in our cities and towns, and when the wealth of the community was not what it is to-day, there

was more *esprit* in this matter, and our social and civic life was more pronounced in favor of the public good. With wealth has come indifference to the weal of the community, and with comfortable circumstances that selfishness which felicitates itself in isolation. Formerly lectures, readings, literary and debating clubs, "socials" for mental improvement, and other schemes of an educating and improving character, were wont to be patronized, but of these one hears little now-a-days. It would seem as if we had retrograded greatly from these times, while the apathy that now reveals itself, in matters that concern the intellectual life and public culture, leads us almost to despair of a revival of interest.

Nor is the press, in the main, more helpful to culture, or influential in the formation of an elevating public taste. Politics have, unfortunately, become our only education, and the theme and burden of the utterance of every journal. No purely literary paper can find adequate support outside small circles of the educated class, and monthly periodicals, of any high character, have but a precarious existence. The journals, as newspapers merely, are the only enterprises that find eager and constant supporters; and these, with some few exceptions, make no original provision for the serious student. Literary excerpts, save of the most fluid character, find little representation in their pages; and literary criticism is almost unknown. Politics, controversy, trivial occurrences, and gossip, are the main items of their daily bill-of-fare; the first of these being served and reserved, with all their inconceivable littlenesses, the round of the year. Of course, so long as the general public is satisfied with the cheap performances of journalism, and craves no higher food than a hurried daily press is willing to give it, the quality will

continue to be poor, and its bulk light ; but the public demand and taste is not altogether for poor fare and light weight, and we have had, of recent years, sufficient evidence that the enterprise that has launched experiments in higher journalism finds a constituency of appreciative support encouraging enough to give them life in proportion to the area interested in their publication. The difficulty in the way of their permanent establishment has been that of maintaining the experiment long enough until the public eye and ear at a distance can be caught and interested in their existence. This is the work that could be done by disinterested wealth, responsive to the claims of social life, in contributing to its intellectual well-being, and the furtherance of its highest aims.

Many other objects appeal to the public spirit of our wealthy citizens for encouragement and aid, which, on reflection, will naturally suggest themselves to a liberal mind. None of these, however, presents greater claims upon the would-be benefactors of the people than the establishment and endowment of public libraries, and no influence can be more potent than theirs in contributing to the public culture. Whatever may be the difficulties that confront one, and particularly in depressed times like the present, in placing such projects on foot, they should not deter from hearty and persistent effort in establishing them. If no more ambitious scheme can be launched than a moderately equipped book-club, with ample provision for the purchase of those engines of thought, the modern reviews, monthlies, and the English critical and literary journals, let that, at least, be attempted. The more widely the formation of these reading clubs can extend, the better ; and there is no town of any size but might light this intellectual torch in the com-

munity and avail itself of its helpful aid to mental illumination and advancement. It wants but the inspiring stimulant of enthusiasm, and the contagion of strenuous effort to set the project in motion ; and, not of necessity by some influential person, but by those, here and there in the country, who have faith in the benefits their efforts would confer, and are loyal to the cause of culture.

From their occupation, the public would naturally look to their professional educators to lead them in this work, were they more accustomed to see teachers take an active part in performing those duties in society which pertain to the higher life, and for the fulfilment of which they are professionally so well adapted. We know that the social position conceded to teachers, as a rule, is not that to which they rightly should lay claim ; but society is not altogether to blame either for its deficient acknowledgment of their status, or for the parsimony with which it rewards their labour. It is an old adage that we value a thing at the price we pay for it ; but it is as true that we affix to ourselves our own price. " Respectability," as an old schoolmaster used to say, " is after all a personal attribute," and the teacher can as successfully assert his true position in society as any other member of the community. In Ontario, the High School masters are, as a class, worthy of greater social distinction than the public is accustomed to confer upon them, for their academic standing is higher in the aggregate than that of an equal number of any other of the professions. The attainments, also, of the Inspectorate, are of a high order, and there is no class in the community doing more praiseworthy work. Though lower in the professional scale than the Inspectors and their brother-labourers in the Collegiate Institutes and High Schools, the Public School masters of the Province

are a body of men of which any country may be proud, and the yeoman service they are doing in the intellectual development of the country entitles them to generous and admiring recognition by the people. As a force in the community for good, no class of men are in a position to exercise a more beneficent influence; and the potentialities of such a body of educators as we have now over the Dominion, in giving to it the blessings of intelligence, enlightenment and culture are remarkable in the history of so young a nation.

The only circumstance that can qualify unstinted commendation of the profession is that to which we have already alluded, but which, as we have said, attaches to our systems and machinery of education rather than to the instruments that give them effect. There must, of course, be these systems, and more or less of the regulating and restraining direction of a centralized executive; but, at the same time, there should be the greatest

possible freedom in their operation, consistent with desirable and legitimate control. And with every elasticity that can be given to the system, there should be as little to remind the profession of bureaucracy and departmental paternalism as possible. But above all, there should be the *living life* in the administration which should charge all the conduits of the department with the electric thrill of energy and enthusiasm, and cause the concentric circles of the system to tingle with the dynamic force of its impulse. In so important a bureau as that of education the want of some highly magnetized influence to infuse the system with zeal and activity is an imperious need. With it our educators will become schoolmen in the old and high sense of the word, and a taste for learning and the elegant amenities of life will be diffused. Without it the most potent lever in elevating the public taste and in stimulating the intellectual life and culture of the nation will fail of its highest work.

EDUCATION A SUCCESSION OF EXPERIENCES.*

BY PROF. A. R. GROTE, BUFFALO.

A STUDY of the phenomena of the human intellect teaches us that there is a process going on by which external matters are being pictured in the brain through the action of the senses. The imagination itself is found to depend upon an ideal grouping of experiences, however fantastic and unconnected they may be made to appear. As time elapses and mankind advances, the brain-pictures seem to become more per-

fect, and to embrace more fully the characters of their originals, and their development in this direction is proved by our varying notions of things, and our changing conduct toward them. Education may, then, be primarily conceived as the process of storing sense-impressions in the brain, and the total condition and amount, of the brain-pictures we might style knowledge. An education seems to resolve itself at last in-

* An abridgment of an Address delivered before the American Association for the Advancement of Science, at St. Louis, last August, and published by the courtesy of the writer.

to a succession of experiences, however complex it may appear in its results, so that, in any discussion, it will make the matter much clearer if we study the machinery which makes education itself at all possible. It is evident that we only appreciate sight, or any one other of our senses, because it exists; and in the evolution of sense organs, the feeling of the want of them in the individual evidently succeeds their possession of the species. Through the senses a section of the universe is opened to us, a section which is limited by their powers in bringing, and the capacity of the brain for storing what is brought. But with the utmost exercise of our receptive powers our view of the world remains a section still. When we find, for instance, that vibrations of the air below thirty-two and above 100,000 per second, make no impression on the human ear, we understand that we are cut off from a wide range of possible sound. So that every mechanical appliance by which we can enlarge the field of experience tends to increase our knowledge, and, therefore, to affect our conceptions of the world about us.

The "atoms" of the intellect are thus seen to be the single sense-impressions, and the conclusion is inevitable that reason is generalized experience. It is possible to check the correctness of this conclusion through a study of the intelligence of the lower animals, and the efficiency¹ of their senses. And so far we have found that the generalizations of knowledge which they are able to make, and which we have called in the past instinct, to distinguish them from our own reason, stand in direct relation to their capacity of receiving sense-impressions.

It may be said that what the lower animals do know, they come to know by similar means and in the same way that we acquire knowledge. It

is now the generally accepted conclusion by scientific minds, that instinct and reason differ in degree, and not in kind. Our literature is already full of proof, drawn from the habits of vertebrate and invertebrate animals, that this position is a just one, and explains fully the relationship between the intelligences of the different animals themselves, as well as between the intelligence of the races of men and that of lower types of existence. Reason is, then, built up out of past experience, which we use when brought into fresh contact with things. We become more reasonable as we experience more, and the object of education is to impart that reasonableness more quickly, so that the growing generation may not be obliged solely to find how things are from the slow process of its own experience, but profit by the knowledge which was gathered by those who passed away before. Reason, then, depending on the sense-impressions, must be affected by the character of the sense organs. If these were more perfect the acquirement of knowledge would be easier. In fact, they are found to be limited and unreliable beyond what we might at first be inclined to grant. But however justly we may distrust our senses on any particular occasion, we cannot consider them, or any one of them, as totally unreliable. All that we can do is to point out their insufficiencies, to check the evidence of one sense by that of another, to try by repeated experiment to establish the actual condition of affairs.

The pictures which our senses give us are not to be regarded as false although they may convey a misleading idea of the object perceived. Every action of the senses gives us a comparatively true perception of external objects. A correct judgment is formed after a full examination through all the senses that can be brought to bear

on the subject, and in this way the actual state of affairs may be discovered. The method of examination we may employ is determined not only by past experience, but by that analogy which prompts fresh experiments. At bottom this is what makes education attractive, that the mind grows in the direction to receive more and more complete pictures of things. And this is an answer to those who object to scientific hypotheses, that all such, based on observation or sense-impressions, are to some extent reliable and serviceable. It is not true, either in part or wholly, that we "take leave of our senses," to construct our scientific hypothesis, but the reasonableness of our hypothesis stands in relation to the extent of our acquaintance with its subject and related matters. But aside from the imperfection of our senses, which may make a correct judgment impossible, or at least difficult, we find ourselves sometimes under exciting conditions of the brain, when we mistake the subject of our thought for the object of our sense-impressions. False seeing and false hearing have come to be classed among the diseases of the brain, and the evidence collected on this head points to the conclusion that it is the memory which is here affected. The explanation of memory is, that it is the result of an effort of the mind by which we recollect the pictures and impressions already stored in the brain. The mind, "that veiled enchantress," as Draper calls her, is "veiled" because her feeders are so subtle, that we believe she exists without subsistence. But in all her phases she is seen to depend literally upon the senses for her vigor. The dream-doors of night's dwelling, opening at the touch of sleep, let forth a troop of images seemingly of fresh import, and perhaps of direst consequence. But reason, by simply bringing the figures into their proper se-

quence, reveals in them the pictures of the day's experience. Before discussing the imperfections of the senses, and which so deeply affect our conceptions, let us briefly consider the way in which one of them, that of sight, receives its impressions and conveys them to the brain.

Young, in his theory of the perception of color, has shown that there are three orders of pointlets or nerve ends of the retina, and that each order of nerve ends is sensitive to a different rapidity of the light waves. Helmholtz demonstrates that certain of the nerve ends in the retina are destructively affected, in both the live and the dead subject, by particular rays of light. We may conclude that the shape of any object, as it appears to us, depends upon the number of pointlets of the retina affected by it, and the color on the order of nerve ends stimulated by it so far as our sight of the object is concerned. The cause of the color of any particular object itself must be sought in the structure of its atoms, which absorb certain of the rays of light and reflect others. Thus all objects may be considered, in a general way, prismatic; that is, they effect a separation of the rays of white light in displaying the phenomena of color, but they do this by absorbing certain of the rays. This is the point where the chemist and the biologist meet—every phenomenon displayed by an object is found to depend upon the ultimate structure and arrangement of its component atoms. We may thus conceive of the action of the sense of sight without calling to our aid anything but the thing seen, the medium through which the thing attacks the eye, and the machinery which conveys the picture of the retina to the brain, where it is registered. We may in this way investigate the action of the remaining senses, and with a similar result.

Always there is the thing perceived, the media, the contact, the machinery of the sensory nerves, and the gray matter of the brain. Defining education, then, as the process of receiving a series of sense-impressions and experiences, let us consider in what way our knowledge is affected by the limitation and imperfection of the senses.

We have said that, from the limitation and imperfection of our senses, but a section of the universe is opened to us; in reality, we have but a partial idea of even this section. It will occur to every one that there are a large number of objects which they fail to take cognizance of, although they could do so if they had the opportunity. Such objects as distant portions of the earth's surface, foreign animals and plants, many of us have to content ourselves without seeing. We know them through the senses of other persons, who have written on them. Nevertheless, our total conception of the world is affected by our personal ignorance of these matters which go to make up the world. But, aside from this class of objects, there are also to be considered the large number of things we pass over from inattention, and a want of preparation of the senses to entertain them. How large a class this is we can easily understand when we know that the difference between scientists and other people is involved in the matter. For a scientist is merely one who diligently observes things that for the most part are not seen nor heard nor felt by others. Life is also too short to witness the outcome of many things, and the years in which we are willing to pursue inquiry too few. It has happened that generations have elapsed before a new age has carried on seriously the investigations commenced at an earlier epoch.

When we examine the sources of

our knowledge, it will be found, I think, that we have attained it in two kinds of ways, and that for convenience and a better understanding of education itself, we may take these two ways as a rough classification of our knowledge itself. The one is by direct experimental contact with things, and this is the most positive and certain, so that we may call the knowledge we acquire in this way real. The other way is through books and the teaching of persons other than ourselves, and we may call this kind of knowledge second-hand. In the process of education we draw upon both these sources of information, and both go toward determining our total mental status. They are, in fact, so interlaced that we have difficulty in separating them. What we have read about often seems only to be separated from what we have experienced by its lesser vividness, and the art of teaching evidently lies in the power of presenting second-hand knowledge, so that it has the force, or nearly so, of an absolute sense presentation. Undoubtedly there is a certain ease and facility in acquiring second-hand knowledge, which renders the process attractive to the mind; the mind, which, as we have said, grows in the direction of receiving information. But this second-hand knowledge carries with it the greater possibility of error. We have only to recollect that our second-hand knowledge is imparted to us through the machinery of words, and words, we all feel, but approximately express our ideas. This fact supplies the reason for the success of object-teaching in education. Undoubtedly the second-hand information of today is not the best information now possible, but, as a whole, it compares favorably with the second-hand information of twenty years ago.

From the fact that the vast majority of us acquire our conceptions of

external things largely during our school and college days, there is an evident reason for the popular unfriendly attitude towards new ideas drawn from experiments unknown to the past generation of school children. Between this second-hand information and real knowledge there is seen to be a constant inter-action; the first is always improved by the results of the latter, and so mankind is instructed as time elapses. The proceedings of our scientific bodies contain a mass of information which is brought later on into our school-books in different shapes.

The effect on the minds of the rising generation is cumulative, and most children start with ideas and a presentation of facts with which their parents perhaps finished their education, and few of us, we know, actively pursue our studies during mature life. But here we must be struck with the fact which a study of the inheritance of certain faculties of the mind present. Much, we know, almost everything, is transmitted from the parent to the child, and along with the copy of the structure, the resemblance is carried out into minor details of form and feature. And in the same way the structure of the brain, which we yet fail to well understand, is affected. The faculty for receiving a certain class of brain-pictures rather than another, the bent of the mind in a certain direction, follows with the color of the hair and eyes and the shape of the skull. But this faculty may exist and at the same time an absence of the brain-picture, which would satisfy and fill it, may cause its obliteration in the child from disuse. We must then clearly distinguish the factor of heredity as affecting the sensory nerves and the brain, when we consider the total mental condition of the individual. The action of the senses and the exercise of the brain beyond a certain extent, which

varies with the individual, are painful and therefore distasteful. Up to what point they may be carried in any given case is difficult to determine. Sufficient it is for us to appreciate that, for the mass of mankind, a small total amount of sense and brain work suffices, and that we are generally willing to avail ourselves of the less tediously acquired knowledge which we receive through books. And even these it is almost usual to read carelessly and to avoid comparing, taking the remarks of author after author listlessly into our minds, until our reason is clogged with contradictory impressions, and our total mental attitude becomes feeble and vacillatory. And here this fact presents itself, that in proportion as we apply to the sources of our real knowledge, and generalize from the results of our sense-impressions, we are able to criticise our second-hand information, and work toward a truer apprehension of ourselves and the world we live in.

Those who rely chiefly upon second-hand knowledge in effect refuse the present opportunity, which is alone their own, and must necessarily accept a lower philosophy of their lives. And by philosophy we mean, after all, an explanation of ourselves and the world in which we are. The range of meaning in words is so great, that ordinarily, we conceal under this term one knows not how much that is mysterious and that may be even held unnecessary. But by philosophy we evidently mean that correlation between the brain-pictures by which that which is contradictory is explained or brought into its true succession. We all know how comparatively easy it is for us to entertain contradictory beliefs, and how we do not even notice this contradiction until we come to compare our ideas, which we do not all of us try to do. But something of a phil-

osophy we all of us attain to as the natural result of our sense-impressions. As we rise to general conceptions, we bring this philosophy to bear upon them, and we are apt to answer very difficult, even unanswerable questions, in a way which at once measures our knowledge and tries our judgment. Even when our philosophy gets damaged by facts we go about with it and wear it in some fashion, still preferring the old cover to the exertion of getting a sounder one from new sense-impressions and a sounder correlation of ideas. But our philosophy or mental condition towards the rest of the world is of vital importance, since from it we derive much of our happiness. A life is often wearily spent in struggling to face even very ordinary mental difficulties, in the endeavor to reconcile our experiences with our derived ideas.

What is needed, then, is some more accurate comprehension of what we are and to what things are tending, and to get at this we must lay under contribution all the possible sources of knowledge. From a conscientious application to the evidence of our senses, we may come to some certainty of what things are and have been, and from a careful study of literature, we may find out the direction of development in human affairs. The result of both these lines of investigation to the student is a culture as high as the amount of labour he has expended, and a happiness as complete as his mental development is equal sided. In any event this culture will be found to confer upon its possessor immunity from many of the sorrows of this life.

But obviously, this total happiness depends on the correctness of this, his philosophy upon which it rests. A picture on the brain, received how it may be, if partial only, is nevertheless lasting, and has its effect in

deciding the mental tone. And from these incomplete pictures we arrive at false or incomplete conceptions. In this way the persistence of ideas may be explained by the persistence of the physical impress on the brain, and the mental labour requisite to alter or erase such a partial and misleading picture is always great. Great in any event, it becomes too heavy a task for many of us when the pictures have, most of them, taken this turn. We are then committed to a wrong view of life, and must suffer the consequences. We must share in this event the average happiness which the defective philosophy to which the pictures lead us ensures. And the way in which pleasure and pain generally arise is the same as the way in which they come to the sense-organs and the nerves. Pain arises in the body when any sensitive portion is torn or interfered with, and again, where the wearing of the tissues is greater than the supply from the blood of the waste, as in being tired, or hungry, or thirsty. Pleasure arises from as vigorous an action of the organs of the body as can be maintained, without expending more force than is supplied to the tissues and nerves from the blood. And exactly in the same way, by wear and tear, we find our senses affected. So that the conclusion is inevitable that the injury we inflict on the total organism, from undue exercise of the senses, is as pernicious to its proper development as excessive muscular work would be. The intellect, as distinguished from the emotions, is that part of the mind which discriminates and appreciates differences, but this fails us, too, after severe studies. A hard example in Arithmetic, for instance, and a difficult feat in gymnastics, present similar demands on the system; and at a certain age, indeed, the amount of vital repair necessitated by the first

may be greater than that demanded by the second.

A work of immense labour it is to unravel the network of complex thought which surrounds us to-day, and determine the origin of the separate threads. Such a labour is comparable to that of the biologist, who, through a succession of different but allied species of animals, traces the origin and modifications of a bone or muscle. But so much exists upon this subject already, that I have ventured to give the material points of our mental progress, which may possibly assist us in our conceptions of the successive stages through which the mind of man has already passed. At the outset we cannot too strongly insist upon the comparative value of such terms as "civilization." Our general tendency is to give a fixed value to such words, measuring them by our own standard, and to this unconscious action, which has a wide application, and from which nothing but culture will free us, deeper thinkers have given the name anthropomorphic. In this instance, since our civilization is constantly changing, we can only consider ourselves as standing on a plane of comparative excellence, while a comparison of our own with the civilization of the Chinese, Hindoos and Japanese, shows us that in some few points, it may be, we have a lesson to learn; while in others, as in the character of criminal punishments, these nationalities occupy ground that we have abandoned centuries ago. The motor of civilization must always consist in an improvement of the machinery for the exchange of thought. This follows from our conception that our intelligence results from our sense-impressions on the brain, and that we understand by education the process of acquiring these brain-pictures. Clearly, the acquirement of articulate speech marked the first advance in

human communities in mental evolution. It does not appear that we know how articulate speech came to us, although we may hope that in the disintegration of vocal sounds by some such invention as the phonograph, a reasonable theory of its successive steps may be brought out. The first marked advance upon the formation of language lay in the discovery of the characters of writing which we call phonetic, the steps to which were marked by the use of different grades of object signs. Through the invention of writing, a man's experience in this world was not lost when Death struck him dumb. For the earliest writings we have retained a special reverence which lasts until to-day, and has not been dissipated by extended familiarity with the process. The next step lay in the invention of printing—always following the same line of advance which mental development had marked out from the first, the growth of the mind toward receiving more and more perfect brain-pictures of external things, and the effort to assist this growth through the dissemination of ideas. Before the invention of printing, an important part of the process of education was limited to the few, because these alone possessed the art of writing, and the means to secure collections of manuscript of different kinds. Hence the difference between ancient and modern civilization lies chiefly in this, that in the former the masses could be improved from outside of themselves by the orator. The printing press, at a later time, enabled the people to take the orator home with them, and review at any time his messages. In ancient times writing required to be read, and the stated re-reading came to be a custom in public before the action graced the hearth at home. So we may consider the advance of mental intelligence to be marked by these three great

inventions: speech, writing and printing, while in our own day the spreading and perfection of our intelligence has been aided by the kindred inventions of the telegraph and telephone. Civilization thus appears as the consequence of the dissemination of experiences among mankind.

Those who have brought together the story of the ancient civilization of Greece have agreed with unanimity that the separation between the mass of the people and the intellectual portion became at length insurmountable, and finally led to national destruction. This makes for our own view, that it was to a defect or incompleteness in the machinery for the dissemination of knowledge that we must ascribe the dying out of the older States. An intellectual aristocracy was established in Greece, which, in order to maintain its superior position, and from natural and selfish motives, endeavored to prevent the spreading of new facts, but it was assisted in this action by the limitation which an ignorance of the art of mechanically duplicating writing threw around it. Philosophers have explained the fall of Greece by considering it as a necessary step in the progress of humanity and the perfection of a future bloom of knowledge. And so in one sense it may be, but still, exactly where the defect lay and where there is a positive advantage in the conditions of modern civilization, and wherein modern civilization more adequately protects the State, has sometimes escaped them. To understand this fully we must come back to natural history, to anthropology, at last. A large class of persons with a certain bias persistently decry our modern civilization, and look for its more or less speedy evanishment, merely because Rome perished and Greece decayed.

But nowhere in nature is there exact repetition, and to understand

the new civilization we must remember that it rests on a larger average intelligence, brought directly about by the discovery of the art of printing. There is then a distinct reason, a scientific ground, for the opinion that our present civilization rests upon a surer basis than did those which preceded it, and this we may safely bring forward in the cause of truth. For science is in danger always of being regarded as the enemy of the State, because it tends constantly to modify existing ideas. But if we can show the necessity for a constant modification of our ideas, arising out of our own constitution, then it may be seen to be unreasonable to defame those who follow the search for truth. And it being undoubtedly true, as Locke says, that of all the men we meet with, nine out of ten are what they are, good or evil, useful or not, by their education, we can see how wide reaching the effect of our improved basis of civilization must be upon us as a people, and how important it is to understand the real direction in which it works.

But, indeed, the position I have tried to sustain in this paper lies outside of any criticism of modern education. I have tried simply to show the way in which our modern civilization has grown up, and its real superiority over ancient culture. From this we may rest assured, that science, while it influences, can never be an enemy of the State; and that the danger of the State, as well as other social systems within the State, will lie in the direction of an opposition to scientific truth and the right reason of mankind. But it remains for science to play a distinct part in the discharge of its full duty to the community, by popularizing its discoveries. Doing this, it will insure the stability of the State by increasing the general information of the people.

FIRST PRINCIPLES OF EDUCATION.*—II.

BY A. W. GUNDRY, TORONTO.

THE fundamental principle of Mr. Spencer's theory of Education, as we have already said, consists in a special application to that subject of the general principle of evolution, which has guided his fruitful investigations and governed his far-reaching speculations in other and higher fields of thought. It is, to say the least, doubtful how far we shall advance the object which we now have in view, of bringing his work on Education more generally into notice among those who are most concerned in its subject in this country, by making this avowal at the outset. We are only too well aware of the unpleasant, if unreasonable associations which, even at this late date, cling in Canada around both Mr. Spencer's name and the philosophical hypothesis with which it is inseparably connected. Into the merits of such a vast and perilous question as whether the prejudice which undoubtedly exists is justified or unfair, we should not consider this a fit place for entering, even had we less limited space at our command. We would merely suggest that, however strong the prejudice may be in Canada, it has been and will be quite powerless to prevent Mr. Spencer's book exerting a very remarkable influence elsewhere; that however much his work may be neglected here, it is being rapidly sold and eagerly read at this moment in England, as it has been in

the United States ever since its first publication there, and as translations of it have been in most of the countries of Europe.† It is to be hoped, therefore, that Canadian educators will not suffer a mere prejudice against a name to isolate them from the most advanced of their fellow-workers in other quarters of the globe, or to debar them from participation in the results of perhaps the most profound thought, and the most philosophical treatment, which have been brought to bear on the subject of education for many years.

Having in our last paper outlined the first chapter of Mr. Spencer's work, in which he demonstrates that the knowledge of most worth is Science, we will now resume our summary at the second chapter, which deals with Intellectual Education.

Mr. Spencer considers that the common characteristic of all the most prominent improvements in education during the last fifty years, is an increasing conformity to the methods of nature. "We are on the highway," he thinks, "towards the doctrine long ago enunciated by Pestalozzi, that alike in its order and its methods, education must conform to the natural process of mental evolution; that there is a certain sequence in which the faculties spontaneously develop, and a certain kind of knowledge which each

* "Education: Intellectual, Moral, and Physical." By Herbert Spencer, New York: D. Appleton & Co., 1871.

† The *London Academy*, of Dec. 28th, says that within a couple of months almost all the copies of the cheap edition recently published in England have been sold off, and that a fresh issue is contemplated.

requires during its development; and that it is for us to ascertain this sequence, and supply this knowledge. . . . In education we are finding that success is to be achieved only by rendering our measures subservient to that spontaneous unfolding which all minds go through in their progress to maturity." This principle has never, indeed, been totally ignored; for, without some regard to it, education would be an impossibility. But it has been recognized as a vague generality only, and never acted upon strictly and in detail, as it must be before we can appreciate the full value of its guidance.

The undeniable fact that the Pestalozzian system, although based on this principle, has not fulfilled the promise which it gave at first, must not be considered to reflect discredit on the principle itself. It is to be accounted for to some extent by the dearth of teachers really up to the level of the heterogeneous requirements of so complex a scheme. But the main cause of its comparative failure is found in the consideration that Pestalozzi, while right in his fundamental ideas, was not right in all the applications he made of them, nor in all the plans he deduced from them. Indeed, it is obvious that no method of education, harmonizing with the process of mental evolution, can be fully successful until we have a far more intimate knowledge than we even now possess of the facts going to make up that process. But notwithstanding that we must wait for the establishment of a rational psychology before we can hope for perfection in any method which is based on psychology; yet we may "with the aid of certain guiding principles . . . make empirical approximations towards a perfect scheme." Our author proceeds to specify these principles, and we will briefly indicate them, as far as possible in his own words.

1. In education we should proceed from the simple to the complex; a truth not altogether disregarded, but still not acted upon professedly or consistently. "The mind grows. Like all things that grow it progresses from the homogeneous to the heterogeneous; and a normal training system being an objective counterpart of this subjective process, must exhibit the like progression." Not only in the details, but also in the *ensemble* of education, should we observe this principle; "our teaching should begin with but few subjects at once, and successively adding to these, should finally carry on all subjects abreast."

2. "Our lessons ought to start from the concrete and end in the abstract,"—a repetition of the foregoing in a form made necessary by a general misunderstanding of what is truly simple, and what complex. Generalizations of groups of details simplify the conceptions of those who are *familiar with the details*; but to minds unacquainted with these, such generalizations are not simple, but extremely complex. Yet, by a confusion of two kinds of simplifications teachers commonly make the mistake of forcing such general formulas upon the minds of children in the first instance, before familiarizing them, one by one, with the truths embodied therein. They forget that "only after many of these single truths have been acquired does the generalization ease the memory and help the reason—and that to the child not possessing these single truths it is necessarily a mystery." Properly, "the mind should be introduced to principles through the medium of examples, and so should be led from the particular to the general—from the concrete to the abstract."

3. "The education of the child must accord both in mode and arrangement with the education of

mankind as considered historically ; or in other words, the genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race." For it follows from the laws of heredity, as illustrated by the transmission of both individual and national traits from ancestors to descendants, that "if there be an order in which the human race has mastered its various kinds of knowledge, there will arise in every child an aptitude to acquire these kinds of knowledge in the same order." While it would, therefore, assist the unfolding of the individual mind to follow this order in our tuition, even were it intrinsically indifferent, we find that it is *not* intrinsically indifferent. The historical sequence has been, speaking broadly, a necessary one, imposed on the race by the relationship between mind and phenomena ; and each child's mind standing "in this same relationship to phenomena," knowledge of them "can be accessible to it only through the same route" as it has been to the race. "Hence in deciding upon the right method of education, an inquiry into the method of civilization will help to guide us."

4. We are led by such an enquiry to this conclusion, among others : that "in each branch of instruction we should proceed from the empirical to the rational." As the race has observed facts before reasoning from them, so in educating the individual mind, every study "should have a purely experimental introduction ; and only after an ample fund of observations has been accumulated, should reasoning begin. As illustrative applications of this rule," Mr. Spencer cites "the modern course of placing grammar, not before language, but after it ; or the ordinary custom of prefacing perspective by practical drawing."

5. As humanity has advanced solely by self-instruction, it is a "second corollary from the foregoing general principle, and one which cannot be too strenuously insisted upon, . . . that in education the process of self-development should be encouraged to the fullest extent. Children should be led to make their own investigations, and to draw their own inferences. They should be *told* as little as possible, and induced to *discover* as much as possible." Whoever has observed the independent activity of a child's mind, on matters within the range of its faculties, will admit that those faculties, "if brought to bear systematically upon any studies *within the same range*, would readily master them without help. This need for perpetual telling is the result of our stupidity, not of the child's. We drag it away from the facts in which it is interested, and which it is actively assimilating of itself ; we put before it facts far too complex for it to understand, and therefore distasteful to it . . . by thus denying the knowledge it craves, and cramming it with knowledge it cannot digest, we produce a morbid state of its faculties, and a consequent disgust for knowledge in general." Whereupon, having smothered the independent power of thought, we, forsooth, smile at the idea of encouraging self-development in a child as absurdly Utopian !

6. "As a final test by which to judge any plan of culture, should come the question,—Does it create a pleasurable excitement in the pupils ? . . . for a child's intellectual instincts are more trustworthy than our reasonings. In respect to the knowing faculties, we may confidently trust in the general law, that under normal conditions, healthful action is pleasurable, while action which gives pain is not healthful. . . . Experience is daily shewing with greater clearness

that there is always a method to be found productive of interest—even of delight; and it ever turns out that this is the method proved by all other tests to be the right one.”

With the view of exemplifying the application of the foregoing general principles, as well as of making some specific suggestions, Mr. Spencer now passes from the theory of education to notice some points in its practice. He considers that education of some kind should begin from the very cradle, and indicates the course which conformity to a true psychology would dictate in this respect. The earliest impressions the mind is capable of assimilating being such primary sensations as those of light, sound, resistance, etc., and markedly contrasted impressions being the first to be distinguished,—objects and sounds selected with a view to familiarizing the infant with these properties in their various degrees, should be supplied to it in proper order. As the faculties unfold, this rudimentary culture of the senses will naturally merge into object-lessons. The true theory of such lessons, disregard of which accounts for their frequently unsatisfactory results, is based on the principle of encouraging and guiding *independent* observation. The child should not be *shewn* and *told* the properties and qualities of the various objects until it has exhausted all its own powers of observation in discovering what it can concerning them for itself. Nor should object-lessons be confined to the early age, or to the narrow range of things at present regarded as sufficient. They should include the objects of the sea-shore, the fields and the lanes; and should be continued in gradually increasing complexity, until they at last “merge into the investigations of the naturalist and the man of science.” Mr. Spencer further illustrates the practical appli-

cation of his educational “first principles,” by sketching the outlines of rational methods of teaching drawing and geometry, to which our space will allow of no further allusion. The chapter on Intellectual Education concludes with a reiteration of the two general principles, “alike the most important and the least attended to,” that “the process shall be one of self-instruction; and the obverse principle, that the mental action induced by this process shall be throughout intrinsically grateful.” In support of the first we have the consideration that knowledge acquired by the exercise of one’s own powers, is assimilated with a readiness, retained with a vividness and permanence, and organized and “turned into faculty,” with a rapidity as inconceivable as impossible to the passive victim of instruction. Self-help, again, develops the moral qualities of “courage in attacking difficulties, patient concentration of the attention, perseverance through failures. . . . characteristics which after-life specially requires.” The correlative principle, “that the method of culture pursued shall be one productive of an intrinsically happy activity,” even did it not serve to guide us in the effort to conform to the normal process of evolution, as before explained,—and even if youthful happiness were not in itself a desirable aim,—should yet receive practical recognition on other grounds. Knowledge acquired pleasurably and with interest, is fixed more firmly in the memory than that which is regarded with distaste or indifference. The moral consequences of the habitual attitude of mind towards the daily work, are also of great importance. The character is elevated and invigorated by a happy interest in it; while listlessness, apathy, and lack of self-confidence, must inevitably follow if the routine of study is uncon-

genial. Moreover, the influence of the teacher over his pupil, and the pleasantness of the relationship between them, which forms its firmest basis, depend altogether on whether the former is associated in the mind of the latter with daily gratification and delight, or with daily trouble and disgust. Finally, if education be made a process of self-instruction, so adjusted to the healthy evolution of the mind as to result in a pleasurable activity of the expanding faculties, the tendency of the student will be to continue such self-culture when released from superintendence; a freedom he will as certainly avail himself of to abandon the pursuit of knowledge if a false system have associated it in his mind with irksome constraint and distasteful extortion.

With the succeeding chapter, on Moral Education, we must deal very briefly. The main principle which it lays down is based upon that theory of moral discipline which is the discipline of Nature; and in which punishment is not an infliction of artificial penalties disconnected from the offence, but simply its inevitable consequence,—the reaction of organic law upon its transgressor. This impartial and unimpassioned discipline of natural penalties, is that of which Mr. Spencer urges the adoption in education; not loosely, intermittently, and as a theoretical generality; but closely, consistently, and in practical details. Among the superiorities which he considers it to possess over the common practice of artificial punishment, may be noted the following:—

1. Under this discipline, right conceptions of cause and effect are formed. Proper conduct will be best assured when the good and evil consequences of actions are learnt by actual experience, instead of being taken on authority. If, during youth,

parental or tutorial displeasure has been habitually associated in the mind with wrong-doing, as its effect, when this displeasure is no longer feared, the restraint it artificially imposed is, in great measure, removed. The self-constraint which an experience of the natural and essential effects of transgression would have produced, is lacking; and, if learnt at all, must now be attained to after a far severer buffetting from experience than would have been necessary had the true system been adopted from the first. It is from this point of view that we are enabled both to explain and to prevent that “sowing of wild oats,” which so often follows a young man’s release from parental control; and to understand how it is that the wildest of them are often sown by sons who have at home and at school undergone the strictest forms of the artificial discipline.

2. “Another great advantage of this natural system of discipline is, that it is a system of pure justice; and will be recognized by every child as such. Whoso suffers nothing more than the evil which obviously follows naturally from his own misbehaviour, is much less likely to think himself wrongly treated than if he suffers an evil artificially inflicted on him; and this will be true of children as of men.” If a boy who has torn his clothes, be whipped and sent to bed, he will probably regard himself as a much injured mortal, and a spirit of angry rebellion, rather than of repentance, will be the result. But if he be simply required to mend the tear as best he can, or else to wear the injured garment amid the derision of his playmates until he does so; he cannot fail to see that he is suffering the natural consequences of his own carelessness, neither more nor less. He has no grievance to bemoan; his punishment may strike him as terribly hard; but he cannot persuade

himself that it is any thing but just.

3. "Recognizing the justice of the penalties, and receiving those penalties through the working of things, rather than at the hands of an individual," the child's "temper will be less disturbed; while the parent occupying the comparatively passive position of taking care that the natural penalties are felt, will preserve a comparative equanimity. And Fourth. That mutual exasperation being thus in great measure prevented, a much happier, and a more influential state of feeling, will exist between parent and child."

The full exposition of this principle and its corollaries, their application to the graver class of offences, and the chief maxims and rules deducible from them, the reader must seek in Mr. Spencer's work itself. He will find in it, brief as it is, a wealth of wise suggestion and of striking illustration; a deep insight into the psychological and philosophical aspects of the whole question, accompanied by a close and wide-spreading intimacy with its most minute practical details. Here as elsewhere are exemplified the marvellous range of Mr. Spencer's knowledge, and the broad sweep of his keen thought, which at one moment pierces to the root of the deepest secrets of our being, and at the next is occupied in demonstrating the folly of denying a child an adequate supply of sugar-plums. How far this is from being mere desultory restlessness, those will know who have learnt from him to regard all things as interwoven and

interacting, under the control and in the fulfilment of one great law.

The concluding chapter, on Physical Education, we are reluctantly compelled to leave unnoticed for the present; beyond remarking that it enforces recognition of the truth that "the first requisite to success in life is to be a good animal;" urges that, with this aim in view, we must "conform the regimen of the nursery and the school to the established truths of modern science;" and shows the bearing of the fundamental principles of the Science of Life upon the physical training of childhood and youth.

We trust that there is no necessity for pointing out that the limits of our space, and the wide scope of the work which forms our subject, have necessitated the presentation of its views in the baldest outline; and that it would be obviously unfair to judge of their force, or to pronounce upon their merits, with only this rough sketch in the mind. Our object has been rather to arouse interest than to satisfy it; and to press this book upon the attention of all Canadian educators, as yet unacquainted with it, who have a high conception of the duties, as well as of the dignity and importance, of their vocation. In summarizing the more prominent of its general conclusions with this end in view, we have supposed throughout that any reader who might feel disposed to dispute or resent them, would also be sufficiently interested, or sufficiently cautious, to consult the book itself for the reasonings on which they are based.

SCHOOL MUSEUMS.

BY DAVID BOYLE, ELORA.

IF it be taken for granted that Natural Science is a proper subject for treatment in the Public School course, the question immediately presents itself, as to the best method by means of which the necessary information may be imparted to the pupil, simultaneously with the carrying on of the educating process. With reference to this point, scientists and educators, almost without exception, occupy common ground, declaring it their opinion that time devoted merely to the memorizing of bald, text-book technicalities, and *viva voce* explanations, even when assisted with elaborate diagrams, is little better than frittered away. To this may be added the scarcely less important argument, that the almost inevitable tendency of such a plan is to disgust young people with the study to so great an extent, that very few of them will think of devoting even the smallest portion of their time to the consideration of biological topics, after the business portion of life has been fully entered upon.

What the spirit of the age demands in this, as in some other fields, is close, direct, personal observation and manipulation. For us, of to-day, it is not enough that this, that, or the other great man, be he saint, seer or scholar, has said so-and-so. What any or all of them have bequeathed to us for our edification may be all right, but it may not be. The Genius of Inquiry, with his crooked wand, directs the movements of the explorer

in every path of knowledge. An individual *ipsi dixit* no longer demands a general amen. The mantle of inspiration has been dropped, and has fallen—nowhere, or everywhere.

In no department of knowledge, during recent years, has the influence of persistent, original investigation been more powerfully felt than in Natural Science, and most assuredly, in none other has so much been done to prove that two and two make four, outside the pale of Mathematics. Despite all that has been effected in the way indicated, ten thousand times more remains to be accomplished. "The harvest indeed is ripe, but the laborers are few." Shall Ontario, with its much vaunted system of education, do nothing to aid the movement? How long will school examination speech-makers continue to set up the pulpit, the bar and the legislature, as the great attainable goals of manhood? Do teachers themselves propose to stand by admiring silently the efforts of workers in the field of Nature, without offering to lend a hand?

To teach Natural Science profitably, as has already been hinted, actual specimens are a prime necessity. This, however, need frighten no one. Hundreds of valuable and interesting objects are procurable within a few minutes walk of nearly every school-room—certainly every rural one—in the Province, and, for the benefit of any who may feel disposed to do even a little towards unlocking Nature's

secrets, it is proposed in what follows to throw out a few suggestions to encourage experiment in the formation of School Museums.

The teacher is, of course, supposed to be in possession of *some* knowledge, in advance of his class—not necessarily very much, but enough to enable him to speak authoritatively. To be in this position, he should have for reference, as well as for study, works bearing on the subjects proposed to be taken up, from as nearly a local point of view as possible. For general perusal books on every department of Natural Science may be had anywhere, but to make “talks” interesting to young people the teacher should be able to speak about things round home. Catalogues of Canadian plants have been published by Dr. Ross, of Toronto, and Prof. Macoun, of Belleville; the former gentleman has also issued a list of our trees. All these contain both common and technical names, and would prove serviceable in naming specimens for an herbarium. Mrs. Traill’s “Wild flowers of Canada,” would serve as a beautiful, though incomplete, adjunct to any one taking up Botany. Ross’ “Birds of Canada” is a cheap hand-book, and gives short descriptions of our common birds, their nests and eggs. A more extensive work is Samuel’s “Birds of New England,” and quite suitable for this Province as a whole. In Entomology, the student should consult Ross’ “Canadian Butterflies;” back numbers of the Canadian Entomological Society’s Reports, and the “Entomologist,” published in London, Ontario, under the editorial management of Mr. W. Saunders. Sir William Logan’s “Geology of Canada” is indispensable to those who propose examining the rocks, minerals and fossils of the country. Should fossils only be the object of study, Nicholson’s “Palæontology of Ontario” will be found invaluable.

Having decided upon a study, no difficulty will be found in enlisting the co-operation of the young people in procuring specimens. Let it be distinctly understood that the choice specimens are to be preserved; that if the trustees furnish a few cases they will become the property of the school, and that every object considered worthy of a place in the cabinet will be labelled with the name of the finder. In the event of the teacher supplying case-room the collection, of course, should become his property. In country schools, there is no reason why a complete set of plants, illustrative of the local flora, should not be found in every section, and it would be somewhat difficult to suggest anything likely to be more interesting, instructive, or truly useful to the sons and daughters of farmers, than a pretty fair knowledge of Botany. Snakes, lizards, frogs, toads, &c., in spirits, should be represented. So far as birds are concerned, it should be borne in mind that a licence is required to enable any one to possess, legally, most of our feathered friends, or their nests and eggs. A sharp lookout should be kept for any relics that may turn up, in the shape of stone weapons, or pottery of the aborigines.

In some respects, villages and towns are at a disadvantage compared with rural sections in making collections, but on the whole they are more favourably situated. A short walk from any school-house in Ontario, outside the cities, will carry one into the country. Not only should the assistance of the pupils in towns be secured, but much may be gathered from the surrounding farms, that is, on the supposition that specimens are not in demand at the rural schools, and it is not likely this will often be the case. Circulars at a trifling cost may be freely made use of in the neighbourhood, stating the kind of objects required, and asking for con-

tributions. Many farmers and their families may by this means be made active co-workers: where the plan has been tried large numbers of desirable specimens have been presented by them. In asking for aid from the surrounding country, it would be well to let it be clearly understood that, should the collection ever assume the ambitious character and importance of a Museum, admission would be free to all, and that visits from country teachers and pupils would be especially encouraged. By-and-by, if the interest is kept up, numerous duplicates of specimens might be collected, and then a system of exchange be resorted to with more pretentious establishments, many of which would gladly give away otherwise unprocurable objects, to get possession of what, in the village or town collection at home, may be of little or no value.

In carrying out a scheme of this kind, if gone into at all extensively, some expense must necessarily be entailed, but it is really surprising how much may be done at a trifling cost. With proper management, in the midst of an appreciative community, and with an intelligent Board of Trustees, one hundred dollars per annum will maintain the collection in a flourishing condition, most of the money going for the supply of cases, payment of freight, postage, and express charges.

To any teacher undertaking such an enterprise—for it is nothing short of that—no remuneration, pecuniarily, need be looked for. It must be "a labour of love." Even where the people possess more than average good sense there is a disposition to regard the teacher as quite well enough, if not too well, paid for all he may do. His only reward must be the interest he succeeds in awakening amongst his "disciples." His pleasure must consist in having led them to

enquire for themselves—to take nothing for granted which it is possible to prove. He must remain satisfied with having—and he should not be satisfied till he has—led them to exercise their powers of observation, to form opinions for themselves, to apply analysis in investigation, to generalize their disconnected views, and to pursue truth with unfaltering footsteps, even at the hazard of having to retrace many a years' travel, it may be, in a wrong direction.

Science and Civilization are almost synonymous terms: they are, at any rate, co-relative. The first attempt of the savage to make himself a weapon, or to produce fire, are but the dawns of what may eventually become the highest condition of culture. To aid in the furtherance of scientific pursuits should be the pride of every educator, and it is quite impossible to do this, so far as Natural Science is concerned, more advantageously than by presenting for study and examination the innumerable objects that lie around us in such profusion.

Perhaps the greatest drawback to any attempt in making a collection, will arise from that sense of impermanence that characterizes the position of so many teachers. Few will feel disposed to devote time and labour towards a project the accomplishment of which requires years for anything like fulfilment. The only way to overcome this difficulty, in places where the people desire to possess a Museum, is for the trustees of the school to take the matter in hand allowing successive teachers a small sum for labour and attendance. Just here a very pertinent query suggests itself. If a corporation, at considerable expense, maintains such a collection, to prove not only valuable as a school adjunct, but to be attractive to visitors, both from the town itself and from a dis-

tance, why should not the Legislature aid the undertaking with its hundred per cent. grant, as is done in the case of libraries? Railways, colonization roads, and schemes of drainage, are very well in their way, and no one grudges a reasonable expenditure upon works of the kind, but surely it would not be asking too much, were

we to request from our law-makers at least the same encouragement towards the formation of local Museums as is now extended to the aggregation of the often antiquated books of travel and other uninspiring literature, which find their way into our school libraries, and which so frequently fail in attracting the interest of the young.

TRAINING AND TRAINING INSTITUTIONS.

BY J. H. SMITH, INSPECTOR OF PUBLIC SCHOOLS, ANCASTER.

SKILLED labor in every department of mechanical industry is absolutely necessary in order that success may be attained, and though improved machinery be used, yet the hand of the skilled artizan is required, so that the work turned out may meet the requirements of the age, both in regard to quality and usefulness. Manufacturers who are desirous of keeping abreast of the times avail themselves of every improvement, whether it be in machinery or in the employment of competent workmen. No business man would for a moment think of putting an incompetent person in charge of one of the most important departments of his work, nor would he long be successful when in competition with others in the same trade, if he were to use inferior machinery. If then these wise precautions are necessary, in order to provide for the material wants of the community and for success in business, how much greater is the necessity for providing the best and most approved machinery as well as the most cunning and skilful workmen, when the moral and intellectual cul-

ture of the people is the great work to be accomplished.

Under the existing law and regulations no person can become a legally qualified teacher without receiving more or less training in regard to school management, as well as instruction in improved methods of teaching. This provision has been but recently introduced, and the results so far have been most gratifying, but much yet remains to be done before this department of our work will meet with that hearty approval from the public which its importance demands. It is evident, however, that at the present time our schools are supplied with a staff of teachers who have received either by experience in teaching or by attendance at some training institution, a certain amount of preparation for their work. Believing as we do, that trained teachers are a necessary complement to our educational system, and that the surest way to secure good schools is to provide a staff of thoroughly trained and efficient teachers, we purpose briefly discussing the subject of Training and Training Institutions.

By the word *training* we mean bringing up, *disciplining*, or in other words *doing*. Soldiers are trained to act together in large numbers, apprentices are trained in the various handicrafts, and animals are trained to perform a variety of tricks. These results, and they are sometimes wonderful, are accomplished by the frequent repetition of the same act under the eye of a competent instructor. So can the mind be trained to acquire and impart knowledge. Solomon tells us to "train up a child in the way he should go, and when he is old he will not depart from it." Training then seems to be essential, whether it be received in the school-room or by actual experience in life. In fact we have to receive it whether we wish it or not, and the question is simply shall it be done systematically and under the direction of properly qualified persons, or haphazard as in our intercourse with the world. Now if we should chance to visit a garden in the spring time, in all probability we should find the gardener at work among his vines or bushes. Watch how carefully he tills the soil around them, how he enriches it with suitable manure, and if necessary how he waters it, thus causing a luxuriant growth. When this growth has fairly commenced and young branches begin to shoot forth, how careful he is to prune out such as are not necessary for his purpose, and to fasten up such as will produce rich fruit, and grow into beautiful and symmetrical forms. Thus it is in the education of the young: certain habits are formed in childhood which if allowed to grow unrestrained, would mar the whole life. These need to be pruned out, while others that beautify and adorn require to be strengthened and supported. Instruction enriches the mind by furnishing it with knowledge, training enables the mind to use this knowledge for the purposes of life,

while education, the end aimed at, being a life long process, is never fully accomplished. Training when properly done, nurtures, develops, and strengthens all the powers of the mind and body and unites them into one harmonious whole, so that when maturity arrives these young people are capable of acting, thinking and doing for themselves.

That there are erroneous views and wrong conceptions among teachers in regard to education and the means used in obtaining it, every one who has been connected with our High and Public Schools for any length of time must acknowledge. Many persons who hold the responsible position of teacher and who regard themselves as teachers *par excellence*, seem to have no higher ambition than to hear a stated number of lessons daily, or go over a particular portion of some text-book in a humdrum sort of manner, without any special reference to the intellectual culture of the pupils under their charge. Doubtless these lesson-hearers,—for they are unworthy the name of teacher,—when this work is done, work which they look upon as a kind of drudgery for which they are but poorly paid, feel that they have accomplished their purpose and discharged their duty in a satisfactory manner. Such however is not the case, for they have yet to learn the first elements of teaching, and the sooner they set about it or give place to better men the better for themselves and their schools. It is not a pleasant task to find fault or to point out the defects or derelictions of duty, and yet to remove this stigma from what should be a most honourable profession, it is necessary to discuss this matter and lay bare every defect connected therewith. The faithful teacher's work is a glorious one both in its nature and results, and no teacher should be allowed to remain in the profession who does

not, at least in some degree, properly appreciate the responsibilities of the position which he occupies. There is no higher position than that of a successful teacher. Not only is it honourable to those who engage in it, but it is fraught with interests of the greatest moment to those who receive instruction. The future success of the rising generation, their ability to cope with difficulties and to act a manly and honourable part in life, are to a very great extent dependent upon their early education. Nay more, not only their usefulness in the world but their eternal destiny for weal or for woe, is influenced to no small extent by those who have been their teachers in youth. Early impressions are deeply graven in the mind, and if these are evil the whole life is tainted, but if good the future is bright and a career of prosperity is opened out for them, not always in a pecuniary point of view, but in that higher and nobler sphere where wealth is a matter of secondary importance. The grave responsibilities of the position and the important interests at stake should be carefully considered before entering the teaching profession, for none but skilful hands should touch "the chords of that harp whose vibrations are felt in eternity."

Nor are these erroneous views limited to certain members of the teaching profession, they are deeply rooted in the popular mind. Public opinion on this point is not what it should be. Many of the ratepayers who frequently hold the position of trustee, either in our rural schools or in our cities and towns, have very narrow and selfish views on this subject if their words and actions are to be taken as a fair criterion of judgment. It is equally true, however, that there are liberal-minded men on many of our trustee boards who are doing a noble work for education, but it is

still questionable whether the general public sentiment is either broad or liberal in this matter. Judgment is passed upon the teacher's work not always upon its merits, whether it be thorough or not, but upon the number of pupils that are promoted or the number of lessons taught daily. We seem to have entered upon an era of examinations, and our whole educational system is apparently permeated with a kind of mania for them. Intermediate, entrance, and promotion examinations, occupy no inconsiderable amount of the time of both teachers and pupils, and it is a matter for serious consideration whether this part of our work is not overdone. It is obvious to the most cursory observer that examinations when properly used are a powerful instrumentality in the hands of the teacher to test the scholarship of his pupils, and to incite them to greater exertions. But when these become the great motive power, and the energies of teachers are specially devoted to the preparation of candidates for passing these examinations, it is evident that true literary culture must suffer and our schools be made mere hotbeds of cramming. Some years ago the great *desideratum* in schools was the advancement of pupils as rapidly as possible through the various reading books, and the person who succeeded in promoting the largest number into the highest reading class in the shortest space of time had his reputation established as a successful teacher. Very little regard was paid to the style of reading or to a knowledge of the passage read. The other subjects of the programme of studies were either entirely neglected or at best but poorly taught, and anything savoring of literary culture was not thought of except in a few isolated instances. The present rage for examinations is apparently but another phase of this

same principle. It might be wise to follow the old maxim and "make haste slowly."

To remove these erroneous views and foster a healthy public opinion in regard to the great aim of education and the true mission of the teacher is no light task, but this appears certain, that if only those who have been trained and who have proved themselves efficient are allowed to teach, these wrong impressions will gradually disappear, and parents will better appreciate the labours of those to whom they have confided the education of their children. The establishment of County Model Schools and the return of our Normal Schools to their legitimate work of professional training will render material assistance, by giving us a class of teachers who will be educators in the truest sense of the word. It is to these schools that we must look for the dissemination of liberal and enlightened views among the profession, and they will but indifferently fulfil their mission if this result be not attained. If their work is limited to mere instruction in the mechanical routine of the school-room or in methods of teaching, however good and useful these may in themselves be, they will not wield an influence in the community at all commensurate with the expense incurred in supporting them. The idea is rapidly gaining ground that special preparation is as necessary for the work of teaching as it is for that of any other calling or profession, and unless teachers have a high ideal of what their schools should be and are imbued with a noble spirit in regard to their work, our school system will never accomplish the great things expected of it nor become a power for good in the land. Our County Model School system is clearly a step in the right direction. These schools, however, might be rendered much

more effective were certain changes introduced, which the experience of the past two years has rendered apparent. Obviously the present sessions are too short. No Head Master can give the necessary attention to the teachers-in-training during the limited time at his disposal, nor can the teachers-in-training receive that practical experience in teaching which is so essential to their success when placed in charge of any of our schools. As these County Model Schools are at present organized it is necessary to have a head master and two assistants, each as a rule having charge of a department. The head master has to discharge the duties of principal of the school, look after the interests of the pupils under his charge, and withal instruct the teachers-in-training in the various subjects prescribed in the regulations. These duties are neither light nor trifling, and it seems as though some branch of the work must necessarily suffer for want of proper attention. If these regulations were so modified as to allow three teachers with two divisions of pupils, and these pupils so selected as to have representatives from each of the four or five classes taught in our rural schools, the head master would have greater opportunities to instruct the teachers-in-training in methods of teaching and the principles upon which these methods are based. Occasionally these pupils might be so arranged in classes as to illustrate the method of conducting an ordinary rural school with one teacher, and again they might be graded as in schools with two teachers. These points are essential, for the great majority of our young teachers will have to secure their apprenticeship in the country, and if these schools are not to suffer, some instruction in the manner of conducting them is absolutely necessary. Young teachers not unfrequently lack

administrative ability, and apparently do not know how to arrange the work of the school-room, so that while the necessary recitations are being conducted the pupils remaining at their seats may be profitably employed. If the sessions were lengthened and these schools organized on a basis so as to more fully illustrate the best methods of conducting an ordinary country school, they would become more valuable as training institutions and greatly advance the interests of education in our rural sections.

Teachers' Associations, strictly speaking, cannot be considered as training institutions, though they are nevertheless valuable auxiliaries. They are now recognized as a part of our educational system and as such receive pecuniary aid. The interchange of thought and the discussions that arise on various topics from time to time in a well-conducted association, have a tendency to enlarge the views of teachers in regard

to their work and awaken greater interest in the cause of education. Practical subjects while receiving due prominence should not entirely monopolize the time of the convention. Theory as well as practice is required, for all practice is founded on theory, and if theoretical subjects are not discussed, teachers are liable to become imitators instead of active, zealous and independent workers. Let the executive committees of these associations secure the services of a competent man to discuss the principles of education, the growth and development of the mind, the disciplinary value of different branches of study, and other topics relating to the dignity and usefulness of the teacher's calling. These things are necessary to arouse in the minds of teachers a spirit of enthusiasm and a love for their work, without which the best laws and the most effective machinery will prove of little avail in elevating the tone and standing of our schools.

THE AIMS OF OUR PUBLIC SCHOOL SYSTEM.

BY SAM'L M'ALLISTER, HEAD MASTER, RYERSON SCHOOL, TORONTO.

GOLDSMITH'S Citizen of the World, amongst the many shrewd observations he makes on western civilization says, "Ask an Englishman what nation in the world enjoys most freedom, and he will immediately answer his own. Ask him in what that freedom consists, and he is instantly silent." Lien Chi's Englishman is but a type of the majority of men, who, having neither the time nor the inclination to investigate the soundness of their theoretical opinions, are content to be guided by authority or custom in holding them.

Our public school system has been long enough established to secure settled opinions as to its merits, and these are neither silent nor equivocal. Its excellencies have been proclaimed from the house-top; they were shown forth with somewhat of meretricious splendour, it is true, at the Centennial Exhibition, in Philadelphia; and at the late Paris Exhibition, its glories seem to have dazzled the eyes of even sober beholders, if we may judge by the following extract from the *London Globe* upon the Canadian Exhibits: "A high qualification is re-

quired from the Canadian teacher, who must be prepared to put in practice the theories he is ready to expound. He must have more than a superficial knowledge of electricity, magnetism, galvanism, and light, and he must be able to handle the chemicals and apparatus, and perform the ordinary experiments with the metalloids which are contained in those laboratories which he can buy of the manufacturing company of Toronto, for £2 8s., less than half the sum he would have to pay for a similar thing in England or Europe. Chemistry is considered the keystone to agriculture, metallurgy, and manufacturing; and as farming, mining, and manufacturing constitute the present and future resources of Canada, the laboratories are extensively used, and in a manner calculated to create a desire in the mind of the pupil to go deeper into a study which promises to be so interesting." Surely we have a Barnum amongst us, and we knew it not. Now, without doubt, our school system must be a good one, else we would not find a matter-of-fact, a frugal and by no means wealthy people, expend upwards of three millions of dollars a year in the support of public schools. The people of Ontario are, as a community, too shrewd and too business-like to spend such an enormous sum as this upon popular education, without the fullest assurance that they receive a fair and honest return for their money, and, though the majority of them may be as silent as the Englishman, in showing its peculiar merits, they can at all events point to the character of the material it turns out as a sufficient return for the price they pay.

It may not be out of place to enquire what are the aims of a system so liberally supported, and whose paraphernalia even, won the commendations of our United States neighbours who are never very ready to ac-

knowledge superiority in what does not belong to themselves.

The first and great aim of our public school system is to teach the children of the country the elements of knowledge, in reading, writing, and arithmetic, so well that they may be properly fitted to perform the ordinary duties of this nineteenth century life with satisfaction to themselves, and with benefit to the state.

Reading, which enables us to live and act with the utmost force of our nature in the present, and lays open before us the thoughts and deeds of the mighty ones of the past, is required to be so taught that it may afford not only profit but pleasure in the daily walks of life,—profit, in contributing to bread-winning; pleasure in rendering available that perennial fountain of enjoyment and recreation of our modern life, the endless productions of the printing press; and both profit and pleasure by training the human voice to act with the intellect in giving just and full expression to the printed page, so that those who hear may grasp the thoughts of the writer as firmly as he who reads. It is required to be taught that it may become one of the great avenues to human knowledge, such as Bacon recognizes it to be in his pithy aphorism: Reading maketh a full man.

The aim in teaching writing is, that he who runs may read, and that all who have been a reasonable time under school training may be able to express whatever they wish to say in fair and legible characters, so that, when they go into active life, they may find this acquirement a ready help in the multifarious concerns of whatever calling they may adopt, and a convenient medium of communicating thought when the voice is not available. Of course, it may be made to do greater service, but these, at least, our school system expects it to fulfil.

Reading and writing are so intim-

ately interwoven with all the concerns of life, that no system of instruction would be worthy of a moment's serious consideration that did not make them of the first importance. It was their demands that caused the invention of the printing press, and called into being the post office; and of what avail would such wonders as the electric telegraph be without them?

Our school system, in requiring arithmetic to be taught, responds to another all-pervading want. There are few walks in life in which arithmetical calculations are not needed, and in the vast majority of industrial lives, readiness and accuracy in the performance of the simple rules, are an absolute necessity. It is intended, therefore, that these should receive the greatest amount of attention and care; but the simple rules are not enough for the wants of either the farmer, the mechanic, or the merchant, and hence facility in operations that task the reasoning powers is aimed at. It may be true, as is often asserted, that much of the work scholars are required to do in connection with this subject is of no practical value, and many of the questions submitted for solution are as far from the demands of actual life as some of the problems which the schoolmen were wont long ago to puzzle their brains about. It is true, writers of *Arithmetics* and examiners in the subject with us are too prone to propound mere conundrums, which can be solved by a little intellectual legerdemain, with little or no aid from the reason.

But "in all labour there is profit," and in a great many far-fetched questions there is wholesome exercise for the mind. It must never be forgotten that Arithmetic in common with all the subjects of our school curriculum has two values, value as knowledge, and value as discipline. Many problems of little value in themselves

afford such training that the mind engaged on them acquires a facility in dealing with others in actual life that require the exercise of similar powers. All this may be claimed for Arithmetic without going to the absurd extent which some, who ought to know better, have done, of asserting that it affords the best logical training the mind is capable of.

If our school system aimed at nothing further than teaching the children of the country these three subjects in the manner here indicated, it would well merit all the support it receives. Reading, Writing and Arithmetic must ever take precedence as the primary subjects of public school instruction, and from the lowest to the highest classes must have no second place in the teacher's esteem. Whatever else is taught badly, these must be taught well, and if they are not, then, it is time for the country to ground arms and consider whether the war against ignorance is not being waged at too great a cost. So decided is the opinion of English educational authorities on their value, that allowances to schools are regulated by the number of scholars that pass in them. It is no exaggeration to say that boys and girls who leave school well grounded in the three R's have received an education from the country which fairly fits them to begin life.

Much more, however, is sought to be accomplished in our public schools than this. It must never be forgotten that these schools are for the children of the country, not for a particular class, and the curriculum is so framed that a good English education can be secured by an intelligent scholar before the age of fifteen is reached. The aim being to enable him to go on with his intellectual advancement in the High School and the University, if need be, or failing this, to fit him for all the duties of citizenship in a state

that is so essentially democratic as our own. Grammar is taught that the scholar may have some knowledge of the origin and structure of the language, its characteristics as a medium for the expression of thought, and the rules that regulate the use of it in correct speaking and writing. It affords a wholesome discipline to the mind in parsing and analysis, and imparts a desirable facility by means of this discipline in grasping the meaning of anything that is read. The aim in teaching Geography is to familiarize the student with the outward conformation of the globe we live on; its political divisions, the people and other living beings that inhabit it, and the means of wealth of the various nations; above all, to make him master of everything that it is of interest to know about our own country. It is sought to give sound elementary knowledge of the earth and its motions, as a branch of the solar system, and to direct attention to the physical geography, or, as it is more properly styled in England, the physiography of our planet. History is taught not merely to gratify the curiosity for a knowledge of past events, but to bring the experience of ages to bear upon the conduct of each individual life, and to enable our scholars to realize what are their rights and responsibilities as citizens. It is no doubt interesting to know that the *Habeas Corpus* Act was passed by the short Parliament of 1679, in the most disgraceful reign in English annals; but it is not only interesting but important to know that it was passed as a bulwark against the tyranny of rulers, and that it secures fair treatment to the most depraved of criminals. It is of some interest to read of the circumstances that attended William the Third's invasion of England, to displace a dynasty that, as has been well said, never learned anything and never forgot anything; but it is not

only interesting but instructive to contemplate his wise and thoroughly statesmanlike conduct in achieving a bloodless revolution. It no doubt gratifies a natural curiosity to read of the events that occurred in our own province in connection with the rebellion of 1837-8; but these events are principally valuable for the responsible government they brought about. The aim of our school system is not to teach mere "drum and trumpet" history, but history that shall be valuable mainly for the lessons that it teaches: the former is merely the husk, the latter is the kernel within.

In a commercial community like our own, it behoves every one to have proper notions as to the relations between debit and credit, and to be in a position to keep a correct record of the business transactions of every day-life. It is sought to enable our boys to do this, and a little more, in the book-keeping they are taught. Mathematics have a full recognition in the amount of algebra and geometry that is taught, and without for a moment assenting to the extravagant claims made on behalf of these subjects as a means of mental development, it cannot be denied that Euclid affords the best logical training a scholar can have. But there is danger of carrying these studies, together with Arithmetic, which some narrow intellects regard as the Alpha and the Omega of our school course, to excess, and of making of our children what Macaulay calls mathematical blocks. Zeal like this is certainly not according to knowledge, and cannot be too strongly deprecated. It would be a serious defect in our school system if it gave undue prominence to any subject and thus interfered with the symmetrical growth of the child's mind. It is the highest merit of any school course not that it cultivates particular facul-

ties but that it aims at educating them all.

The æsthetic side of our nature is not overlooked, since both music and drawing have a distinct place in our school programme, and if we but follow in the wake of the mother country and the United States, both of which are far ahead of us in the teaching of these subjects, we shall be doing little less than imparting to our scholars a new faculty. Nothing will satisfy the demands of our school system in teaching music short of enabling the pupils of our public schools to sing at sight any simple piece of music placed before them; and in regard to drawing, pupils must be enabled to express their ideas by lines, to arrange figures into symmetrical forms, and to represent objects with tolerable accuracy by means of the pencil, before this subject can be considered as satisfactorily taught. Mere copying is not learning to draw, any more than transcribing a few pages of a good author is learning composition.

It is a recognized duty of the state to guard its people against evils to which many of them may be quite indifferent. Amongst these are the dangers to public health, and it is the aim of our school system to assist the state in this vitally important matter by requiring a knowledge of the laws and conditions of health under the name of Hygiene to be imparted to children in our public schools. It is true many of our teachers have very crude notions on this subject, and are too apt to mistake physiology for hygiene in their school-room work. This is rather their misfortune than their fault, for the subject has only of late received prominence, and no text-book has yet been provided that can be considered as a reliable and sober guide on this important subject. What we need is a book written somewhat after the style of Dr. Mills' ad-

mirable article on School Hygiene in the January number of "The Monthly."

If there is one subject more than another which distinguishes the education of to-day from that of three, two, or even one hundred years ago, it is Natural Science, and so important has it become that no system of instruction from the elementary school to the University can be considered complete without recognizing it in some shape. Our public school system does not ignore it, and this is well, for what can be more important than to familiarize our growing generation with some of the phenomena of the material universe and the laws which regulate them. There is no better means of cultivating the observing powers and no surer charm against the goblins of ignorance and superstition. No department of human knowledge, however, so well exemplifies the old saying "Life is short and Art is long;" it has so many branches all of which have special claims to attention that it is difficult to decide which should engross the attention of our public school teachers. Perhaps our safest plan is to take the views of one who is sufficiently conversant with the subject to speak with authority upon it. Sir John Lubbock, an old and tried advocate of the introduction of Natural Science in English elementary schools, and a man of eminence in more than one branch of it himself, thus expressed himself in a speech delivered in the House of Commons last year in support of its recognition: "In speaking of Science, the Hon. member said he did not wish to ask the House for anything that was abstruse or beyond the powers of a child's comprehension, but simply desired that they should be instructed in the simple every-day phenomena of nature, such as the causes of day and night, heat and cold, summer and winter; the reason why the moon had phases and not the other heaven-

ly bodies; the difference between planets and stars, the causes of eclipses and tides, the composition and ordinary properties of air and water, and the characteristics of soils; explanation of the simpler forces of nature, such as the lever, pulley, wheel, screw and wedge; also the ordinary rules which regulate health and knowledge of commoner objects."

While thus stating what he wanted introduced into English elementary schools, this English member of Parliament made a very lucid statement of what is taught in our own.

But it is not alone, nor even mainly, by putting the subject upon the public school programme that the aim of our public school system can be carried out, but by making it a prominent subject in the qualifications of teachers. Hence, it is to be regretted that our educational authorities have seen fit to make Natural Philosophy and Chemistry optional subjects in the non-professional examinations of second-class teachers. Doubtless this has been done as a matter of expediency to accommodate the work of training these teachers to the High-School programme, but this only shows that the entrusting of this work to High-Schools is not an unmixed benefit. However useful the alternative subjects, Latin, French, or German, may be to the students themselves, there is no doubt as to whether these or the natural science groups will be most useful in the school-room. It is true that the latter occupies a good deal of the students' time during their three months' professional training, but the work in the Normal School would be much more thorough if it were a completion of work begun in the Public School, and continued in the High-School. Let us hope that such considerations of expediency will be the exception, and not the rule, in managing our educational affairs: had the founders of

our school system been guided by them it would not be the glory it is to-day. The training of the young is far too important a matter to be controlled by the exigencies of the hour.

We have thus pointed out, in some detail, the aims of our school system in providing mental training for the rising generation, and it must be conceded that, so far as they go, they include all that is necessary for a liberal English education.

Mental training, however, is not all that our children need to become good men and women. It has been well said that the ability to read, write, and cypher, is no guarantee that the person who possesses these accomplishments will not steal. When the state pays a large sum for education it has a right to expect that it will have to pay a proportionately small sum for the prevention and punishment of crime. If this is not the case, then, in supporting education, it is paying too dear for its whistle. The gigantic robberies that have marked the last quarter of a century prove that no criminals are more dangerous than the educated ones; and it seems as if the community by training such as these were nourishing the serpent that will one day sting it. Is there no method by which the sting may be withdrawn before it becomes dangerous? The chief hope of doing this lies in the moral training the child is subject to at home and at school. Our concern is with the latter. A school is a state in miniature; children have there to exercise the self-restraint, in both the playground and the school-room, they must show as men and women, they are there taught the rights of property not only private but public, they have to learn to show a proper regard for the opinions and feelings of others. Truthfulness and honesty in word and deed are expected to be inculcated

by both precept and example. They are made to feel that the infringement of a moral law as well as a physical one brings its punishment, that in fact "the way of transgressors is hard." Subordination and respect for authority are as much at the foundation of government of the school as of the state. Cleanliness, punctuality, regularity, and promptness, in the performances of duties, are expected to be made habits.

It will thus be seen that the aims of our public school system though extensive, are thoroughly practical, and as being for the highest interests of the state, are quite worthy of all the support it receives, if they are properly carried out.

There are two points, however, that will have to be attended to before this system can be considered as fulfilling all that may be reasonably expected of it. No place of elementary instruction would be worthy of the name that did not make the preparation of children for the occupations of life its first consideration. Our own must be conceded this merit so far as our boys are concerned, but only in a very limited degree for our girls,—indeed it fails to anticipate some of their most wide-spread needs. By far the large majority of the girls of our public schools become wives and mothers, and in many cases they enter upon their duties of household management without adequate, or with absolutely no preparation, save what they may receive at home. They have thus all to learn, and there is no more fertile cause of domestic misery than this ignorance on the part of a wife. Many do not know how to cook the simplest articles of food so as to make the most of them; and how many are there who are utterly ignorant of cutting out the simplest garment, and of properly sewing it even when it is cut out? We have the name Domestic Economy among our list of school subjects, but

it is merely a name; if the subject is taught at all it is taught in the most perfunctory manner. This defect can only be remedied by our following the example of England, in requiring that the elements of household management, economy in the purchase and in the methods of cooking ordinary articles of food, the simplest plans of cutting out and making children's garments, shall be taught our girls as a part of their ordinary school work. These may seem homely subjects to introduce into the school room, but they are necessary before our school system can be considered as doing as much to start the girl in life as it does for the boy.

There is one more defect that merits our attention. Ample provision is made for those children who desire to go to school, but none for those who are unwilling, or whose parents or guardians are utterly indifferent to their future welfare, and keep them without schooling. We thus have an Arab population springing up in our midst, children growing to maturity without any regard for law and order, and whose only education is that of the street with its evil associates. Did the baleful consequences resulting from the neglect of this class fall only upon themselves they would be fit subjects for the exercise of private philanthropy, but not for any care or expenditure on the part of the state; but the fact that they are the great feeders of the class that fill our jails is a sufficient reason for directing attention to them. Shall our school system take hold of them and by a course of industrial, mixed with ordinary public school training, prepare them to be honest bread winners and wealth producers, or shall it ignore them and let the country have the expense of them as criminals, or at the best as drones? Those who have to pay taxes for the education of the children of the country have a right

to expect that all these will be educated: if they are not, and those who are neglected are found afterwards to prey upon the community, endangering both life and property and costing much more as jail-birds than as scholars in an industrial school, we need not be surprised if our school system be pointed to as a failure. It is true the necessity for industrial schools has been recognized by the local Legislature, in the passage of an Industrial School Act, but this has remained a dead letter hitherto, and is likely to remain so unless the government offers to assist liberally any corporation that is willing to undertake to provide industrial as well as ordinary school training for the neglected children of our cities and towns. It should go farther than this, however: it would be quite within its province, and consistent with its duties, to establish a Central Industrial School, as it has already established a Central Prison. More cogent economic reasons can be given for the state undertaking such an institution than for providing as it does, refuges for the deaf, dumb, and blind, and an asylum for idiots. The classes that fill these institutions are harmless, while many of those who would benefit by an industrial

school grow up to prey upon us both in and out of prison. So long as any of our children may remain uneducated, our school system cannot be considered a perfect one, and the sooner we follow the example of England, by inaugurating a thorough system of compulsion, supplemented by institutions for neglected, destitute, and vagrant children, such as have been indicated, the more shall we have to show for our money.

It is yet too soon to say with confidence how far our system is a successful one, by its effect on the nation's welfare. Besides, however perfect may be its aims, much of its good results will depend upon the appliances that are employed, and it is no part of the business of the present paper to deal with these. Enough has been said to show that, if its affairs are properly administered by those who exist for that sole purpose, it is fitted to meet most of the imperative demands of modern life. If the same wisdom is shown in perfecting and fostering it in the future as has been displayed in founding and organizing it in the past, Canadians will be able to stand forth amongst the foremost nations of the world as an educated people.

EDUCATION is one of the greatest objects of the age, and most important, not only because it is the noblest in itself, but because it is the means of complete development of our common nature, and a due discharge of the duties of life in their bearing on the future destiny of the race. The fruits of education are so attractive that we are often tempted to force them prematurely, without sufficient tillage, and thus lose sight of the true object of education, which consists much more in the development of the intellect than in the mere putting in of superficial knowledge, and cramming. Hence our necessity of grounding in the rudiments of knowledge, and

thoroughness in all that is done. Knowledge thus got never dies; knowledge got otherwise never lives. Again, it has struck me whether there is not a fear of our making, through our very facilities of teaching, the acquisition of knowledge too easy for the pupils. For it is from the meeting and mastering of difficulties that intellectual strength grows and increases, just as physical exercise develops physical strength. May I venture to suggest the importance of giving special attention to the subject of Domestic Economy, which properly lies at the root of the highest life of every true woman.—*H. R. H. the Princess Louise to the Ladies' Educational Association of Montreal.*

CUI BONO?

BY J. E. WELLS, M.A., PRINCIPAL, CANADIAN LITERARY INSTITUTE,
WOODSTOCK.

WHAT earnest teacher, in these degenerate days, has not from time to time had his righteous soul vexed with this impertinent little query? It meets him at every turn in the higher walks of his profession, coming often like a cold douche upon the kindling fires of professional enthusiasm. Blandly put by cautious parents, sceptically repeated by matter-of-fact trustees, perpetually reiterated by grumbling rate-payers, flung out, *sotto voce*, in the midst of a charming demonstration or a profound disquisition, by some phlegmatic pupil, how often has it well nigh driven him to abandon his chosen work in disgust, and leave the education of the young in the hands of hirelings, willing to degrade the noble profession of mind-culture to the low level of a "Bread-and-Butter Science." True, the question in itself is well enough. It is not only pregnant with profound meaning, but venerable by reason of classical associations. Alas, that in the ignoble rush and crush of this feverish century it should be no longer uttered in the dignified accents of a philosophy seeking only to employ the noblest powers for high and immortal uses, or even in the anguished tones of a crushed and bleeding spirit, crying out for light from the border-land of despair, but rather in the piping notes of the Mammon worshipper, or with the sneering inflection of the Positivist.

But however the teacher who holds lofty views in respect to the dignity of his calling may, in his sublimer

moods, be disposed to quarrel with the narrow utilitarianism which seems to him so incompatible with the highest educational work, he is eventually forced to admit that the question, WHAT GOOD? is notwithstanding a perfectly natural and proper one. Utility is after all at the very root of all culture, even the highest. Education can have no other *raison d'être*. All educators are, of necessity, utilitarians, so far as their professional work is concerned. The only ground of difference, a very broad one we admit, is in the last analysis as to the kind of utility they have in view. When we are once agreed in respect to the true nature of education, or in other words the one ultimate aim to be kept in view in all educational work, there would seem to be scarcely room left for very wide differences of opinion in respect to methods.

It is not the object of this paper to discuss the vexed question of the true end of higher education, so much as to inquire whether there may not be found a harmonizing principle underlying the various and apparently conflicting theories. May it not be that they are not only not contradictory, but when broadly and wisely interpreted, not even necessarily incompatible? The highest goal of all progress, social, political, or religious, is unity in diversity. May not such an unity be the best attainable, nay the best possible, outcome of all the apparently conflicting educational theories of the present day?

No true worker in any sphere can be without a well considered theory as the guiding principle of his industry. And certainly no teacher who appreciates the dignity of his calling, and who would do good and honest and fruitful work, can afford to be without one. First principles of some kind he must have. And these must be in some sense the outcome of his own thinking; he must have asked himself and have found at least a provisional answer, and one for which he is able to give a reason to another asker, such questions as the following:

Is the true aim of my profession to aid my pupils in acquiring knowledge?

Or is it to give preliminary preparation for some specific business or profession?

Or is it to develop mind-force, to aid in the attainment of a certain amount of disciplined brain-power irrespective altogether of any specific work in which that power may afterwards be made available?

Or is it something better and nobler than all these, to enlarge and strengthen all the powers of the soul for their own sake, not for that of any ulterior end? In other words, is the man to be regarded, with Sir William Hamilton, as "an end unto himself?" Are his own perfection and happiness "to constitute the goal of his activity to which he tends and ought to tend," and to which it is the true work of education to aid him to tend?

It is manifest that the efforts of the teacher are likely to be modified and his methods largely shaped in accordance with the solution he finds to such questions as the above. He who regards the knowledge gained as the essential thing will be naturally, though, as may presently appear, not logically, impelled to aim above everything "to cram in facts." He who is willing to accept it as his work to carry his pupil over one stage of preparation for some busi-

ness or professional life-work, will be in danger of finding himself so "cabined, cribbed, confined" by the narrowness of his own aims and those of his pupil as to be utterly unable to do effectively even that comparatively petty task. The teacher, again, who regards himself as a master of the science of mental gymnastics, pure and simple, who makes it his one great end to develop what he regards as intellectual power, will be no less liable to error in another direction. He will be in danger of committing the great, and, in these days, common mistake in regard to both physical and mental culture, of over-training. Sheer strength is not the highest or most admirable quality in either body or mind. If gained at the sacrifice of activity, suppleness, and versatility, it may produce only an awkward, cumbrous giant. In the intellectual no less than in the physical sphere, the words of Horace are applicable: "Force without judgment sinks under its own weight." Most observers have probably come sometimes into contact with minds in which memory, reflection, the logical faculty, and the power of intense and prolonged attention have been so cultivated that the features of any subject of inquiry related to these faculties are seized with the grasp of a cyclops, and yet there is an utter lack of all freshness, vivacity, and elasticity. There is no glorifying of common things by the shaping power of the imagination, or by the bright and varied hues thrown over them by a lively fancy; and there is no eye or ear for the beauties and harmonies that lie beyond and above the commonplace and reveal their presence only to a keener sensibility. No matter how delicious the viands set before such a mind, the sweet juices are lost and the flavour destroyed by the rough handling to which they are subjected before reaching the palate.

Nature, it is true, has much to do with the turning out of such venerable dryasdusts, but her hand is often forced and the finest effects of her better designs marred and lost, as the result of a one-sided and mistaken application of the theory of education in question.

Nor is even the adoption of the well-sounding and attractive Hamiltonian principle without its dangers. The hobby, unless skilfully managed, is pretty sure to carry its rider far from the beaten tracks of practical every-day life into remote by-paths and solitary places. To regard each individual man as an end unto himself, and to aim at developing his mental faculties for his own sake and apart from all relations to his fellows, is probably to misunderstand the philosopher's reasoning, and is certainly to fall into an error which is easily made, and which possesses special attractions for a certain class of minds. To develop, in their due proportion and to their fullest extent, all the faculties of the inner man, is certainly a noble aim for the educationist. But men are related and mutually dependent beings, and no theory of education can be a correct one which does not constantly recognize this relationship and dependence, and modify its aims accordingly. Else the legitimate product of the system is the harmless but practically useless visionary.

But are these one-sided and imperfect results the legitimate and necessary products of the respective theories we have been considering? Let us see whether after all they may not be shown to be logically related and bound together, when rightly understood, by one broad, unifying principle underlying them all.

What for instance is the character of knowledge which is the ultimate goal set up by the first theory? To make it in any sense synonymous with

the learning and remembering of facts would be a narrow and suicidal view, such as could be held by no intelligent teacher. Facts are but the raw material of knowledge. Knowledge is the ability to explain facts, to refer them to underlying causes, or to arrange them in harmony with uniform and comprehensive laws. The true knowledge which is the food of the mind, that which it craves with an earnestness which refuses to be denied, is the knowledge of principles and laws and causes. And were it not so, were the possession of the largest possible stock of items the highest knowledge and the best education, it would still follow that the only successful method of attaining this would be the scientific method. The countless items gathered from all the various fields open to observation and experience must be culled and classified and bound into bundles on scientific principles. Else the available space of the mental storehouse must become quickly overcrowded with the heterogeneous and disorderly mass. But classification and generalization involve the exercise of the highest mental faculties. To use these faculties as they must be used, in order to lay broad and deep the foundations of real knowledge, is to develop brain-power in a manner that can hardly fail to satisfy the demands of the most extreme adherents of the discipline theory.

Take again the narrowest and least satisfactory of all educational aims,—we can hardly dignify it with the name of “theory,”—that which regards simply the necessities of some special business or profession. Interpreted in its lowest sense, which makes pecuniary success the test of fitness, this view of the functions of the educator is too low and small to be worth defending. And yet, even from this point of view, how many disastrous “failures” and “financial crises”

might have been escaped, had the preparatory training of the operators been broader and higher. A thorough grounding in the principles of economic science, a better insight into the nature of social and political and moral duties and obligations, and the enlargement of sympathy and of public spirit, by a wider range of reading and study, would often go far to counteract that exclusive subjection to one dominant idea and aim, which hurries so many on the headlong race to financial and moral ruin.

But if we take a higher view of what constitutes preparation for any specific life-work, if we embrace in our idea of fitness the ability to appreciate and to discharge all the obligations to individuals, to society, and to the state, which arise out of the relations which the contemplated position involves, we find ourselves obliged to include both general culture and general knowledge to an extent limited only by the dimensions those obligations assume to our individual eyes. I am, of course, far from attributing this largeness of view to the majority of those teachers who, consciously or unconsciously, act upon the theory under discussion, in the discharge of their professional duties. That they ought to interpret their theory thus widely, in order to make it worthy of the dignity of their profession, and to fulfil the obligations to society and the state arising out of their own relations to each, seems clear to the most commonplace thinking. But certainly, it must be admitted, that only by virtue of so broad an interpretation can this special view of the functions of the educator be brought fully within the scope of the common principle I am trying to apply.

It would occupy too much space, and is probably unnecessary to go on and try to show how each of the other educational theories referred to can be brought within the range of the

same unifying process. The course of thought will readily suggest itself as I proceed to show that all these theories, however apparently diverse in themselves, are forced in practice to adapt themselves to one and the same method. There is practically but one method in education. The real work must in every case be performed by the pupil himself. All that the teacher can do is to prescribe the course and aid the student in his efforts to follow it. To this, all will assent. Is the intelligent teacher's aim to inform the mind of his pupil with useful knowledge? He can but place the means of acquiring that knowledge within easy reach and say to him, "I cannot give you this knowledge. It can be made yours only by your own toil. Exert yourself to grasp it. Put forth your best efforts, exercise all your mental powers, patiently, energetically, perseveringly, and you will gain the prize; not otherwise." Is his aim to fit his pupil for some professional, or other work? Still is he forced to say "I can give you no preparation or fitness. I can but show you how to acquire it. The rest must be your own. Nature has given you the conditions of success in your untrained powers. Voluntary and prolonged exertion of these powers in the direction I point out, is the only possible means whereby you can reach the end you have in view." The same train of remark obviously applies with, if possible, increased force to either of the other theories under consideration. The two conditions of mental, as of physical, strength and growth, are food and exercise. And the food can be taken and assimilated, the exercise performed with vigour and effect, by no one but the individual to be benefited himself. It matters not whether the aim be the narrowest and most selfish, or the broadest and loftiest, imaginable. The humblest, as well as the highest faculties can be brought

up to their utmost, or to any desired, pitch of development, whether for the noblest or the most ignoble uses, only by dint of the voluntary, and continuous exercise of those very faculties, in the discharge of their own proper functions.

This course of remark is too trite and too obvious to need the support of argument. *Cui Bono?* Whither does it lead? To this one important point that *there is, after all, but one method in Education.* This method all are obliged to use and in all cases. For practical purposes, then, it is scarcely necessary to discuss, much less to quarrel, about abstract theories.

The reader who assents to the train of thought up to this point will readily admit that the great practical questions in education, for utilitarians of all classes, are resolvable into these two:—What subjects and courses of study are best adapted to supply the mental needs, or to strengthen and develop the mental faculties, of the particular student?

By what means and motives can the requisite faithfulness, and thoroughness on the part of the pupil, in doing the work which he must do for himself, be best secured?

The question of courses of study is a large and complicated one, far too large and complicated to be discussed in the present paper. This, however, can hardly be too strongly insisted upon, that for any and all educational purposes a broad and comprehensive range is indispensable to the highest success. The tendency to one-sidedness is one of the chief dangers to which our Collegiate systems are just now exposed. Whether for knowledge, or culture, or character, the too exclusive pursuit of special lines of study cannot but be cramping and harmful. Those essayists who from time to time contend, often in a style marked in every sentence with the indefinable precision

and polish which are one of the first fruits of classical studies, that the time spent at College in reading a few of the masterpieces of the ancient orators, poets and historians in their own inimitable languages, is wasted, seem no less short sighted than ungrateful. To say nothing of the disciplinary value of a study which in a manner compels the student to master the best thoughts and closest arguments of intellects well-nigh peerless, and to say nothing of the intrinsic value of the classical writings as sources of knowledge of the past, both directly in themselves and indirectly through the agency of comparative philology, so long as we are dependent upon language for the expression and preservation of our ideas, and so long as language and thought continue to act and react upon each other, clear thinking alone producing precise expression and the means of precise expression being indispensable to clear thinking, so long shall we be unable to dispense with the study of the almost perfect models afforded us in the Greek and Roman classics.

Again, to illustrate the same point from the positive instead of the negative side. Nothing would seem much easier than to demonstrate the utter insufficiency of any one study, or class of studies, to accomplish the end which any worthy theory of education has in view. Take, for instance, Natural Science, which seems more in favour just now with an influential class of thinkers than any other. As an invaluable stimulator of thought, a fosterer of high intelligence and a source of much useful knowledge, and as an indispensable means of cultivating a very important class of faculties, Science unquestionably merits a place in the front rank of educational agencies. It may well be doubted whether it has even yet received the recognition and appreciation in our High-Schools, Collegiate Institutes, and Universities, which

a wiser estimate of its true value would give it. But when we are asked to accept it as "the be all and the end all" of liberal culture, we may well demur, even though the demand be backed by the authoritative name of Herbert Spencer. True, the demand is shorn of half its unreasonableness when, as in the work in which this claim is made, and which was reviewed by a writer in the last number of this Magazine, the domain of Science is so extended as to take in by far the largest segment of the whole circle of liberal studies. When Science is lauded by such an author as the mother of all valuable knowledge and all healthful discipline, we are not surprised to find that the Science in question includes not only such studies as Geology, Physiology, Chemistry, &c., which are usually classed under that head, but also Poetry and general Literature, the Fine Arts, Morality, and Religion. Of course the word is etymologically the equivalent of knowledge. But when taken in this sense, the statement that Science is the knowledge which is of most worth becomes a mere truism, almost an identical proposition, and is scarcely worth uttering. In fact we are unable to see how the study of History, or Language, or pure Mathematics, or Metaphysics, or of any thing else within the scope of the human intellect can be omitted. But take the word Science in its usual restricted sense, and it would be easy to show that, valuable as it admittedly is in its own sphere, it utterly fails to meet the broad and high demands of either the knowledge or the discipline theory. In regard to the former, it undoubtedly reveals very much that is of great practical utility and proves itself in a thousand ways the benefactor of the race. But when we turn to it for the higher and real knowledge which the human soul craves with an insatiable hunger,

when we ask for real explanation, for true causes, the oracle is dumb. We ask bread, we receive a stone. We long to enter the adytum of the great temple of Nature and gain some insight into the profound mysteries in which being, and life, and thought, and feeling are enshrouded, and the mocking priestess points us to the outer courts, where vast masses of the phenomena which awaken this longing are stacked in orderly and classified array. We pass over our brainful of mysteries for explanation and we receive back the same mysteries, only now in neat packages and homogeneous bundles, carefully ticketed and labelled with long names; as if the intellect hungry for explanation could be put off with mere classification, or cheated into accepting poor little "hows" as satisfactory answers to its "whys" and "whences." True it will be vehemently alleged that our "whys" and "whences" are treated by our great mother but as idle impertinences which she never condescends to notice. But whether this be so or not, it is as clearly beyond the sphere of Science to determine, as it is beyond her power to explain, on any principle she can consistently recognize, the origin of a great demand in the soul for which no supply is found in the environment. Thus in any case Science is unable either to satisfy the higher claims of the intellect in respect to knowledge, or to prove that it cannot be satisfied.

Want of space forbids the attempt to show in like manner that Science, in its narrower acceptation, fails to afford the means of high and complete mental discipline. Suffice it to say that this can be done by no course of study which fails, in obedience to the deepest sense of the motto "know thyself," to turn the mental gaze inward and thence upward. Those who have been taught carefully to study the phenomena of the inner as well

as of the outer world, know full well that there are more strange things in heaven and earth, and the soul of man, than are dreamed of in the one-sided philosophy of the positivist. And no mind can attain the symmetry and equipoise of thorough culture, under a system which ignores the needs of any large class of its capacities or powers.

To sum up in a word, it is more than questionable whether the demands of higher education can be adequately met by any curriculum of study too narrow to embrace the fundamentals of all the great departments recognized in our best Universities. Each of these departments is to a great extent *sui generis*, in regard to both the knowledge and the discipline it imparts. From any high point of view it is certainly better, it certainly makes an abler, broader, and wiser man to know something of everything than everything of something. The knowledge must, of course, be real, not superficial. The man of one idea, or one set of ideas, is not simply a bore. He is by reason of arrested and one-sided development a mental monstrosity. Whatever his acquisitions in his specialty, cannot fairly be called either learned or cultivated. Broad and ever-widening as are the fields of knowledge within reach of human footsteps, it is still possible, within the limits of a reasonable Collegiate course, to gain so much knowledge of their general outlines and salient features, that one can go forth prepared to some extent to comprehend and to sympathize with the views and aims, and modes of thinking of his fellows, in all their varied pursuits. Nothing less should satisfy the ambition of the true educator.

But all this, as we have seen, involves toil, hard, earnest, prolonged toil, on the part of the learner. This rugged path is Nature's own highway. She provides no easy or royal road to

knowledge and mental power, and she accepts no proxies. How then shall the young mind, not yet so inured to toil as to find it pleasure, and not fully prepared to appreciate the reward which is still in the dim distance, be spurred on in the race? Some strong and constant force is evidently necessary. Where is this force to be found?

Many will be ready to answer "Nature has provided it in the irresistible tendency to activity and in the insatiable curiosity, the strong love of knowledge, she has implanted in the mind. These are undoubtedly the best of all motives to steady and stimulate the brain-worker at all stages of progress. The most skilful teacher is he who knows best how to take hold of these, and afford full scope for their operation. What true educator of children does not delight to study the play of soul—light and shade over the face of the child student, as he struggles for the solution of some tough problem, or the mastery of some uncomprehended thought. How delightful to watch the brow darken and contract, and the eye grow dim with unrewarded effort, and then to see the shade flit off and the flash and the gleam which tell of conquest and triumph succeed! There can, I think, be little doubt that were these forces intelligently comprehended and used from infancy upwards, there would in the great majority of cases be needed no other incentive to mental effort at any period than the delight of the mental exercise itself, the sense of growing power and knowledge, and the joy of hard won victory. But the great difficulty in the majority of cases is, that the faculties with which the teacher has to deal have lain dormant until their elasticity is gone, and exercise has become difficult and painful, while the innate love of knowledge has become feeble and torpid through want of its proper sustenance; and,

worse than all, very often been turned to gall by the influence of bitter associations. But I must not prolong this paper by discussing the thousand and one ways in which the skilful educator will in these cases bring up his auxiliary forces by enlisting self-love, stimulating ambition, provoking emulation, rewarding success. One broad principle may safely be laid down. The true teacher, who brings both intellect and heart to his work, I care not whether he be found in the parish school house or the College lecture room, will make it his aim to see that every learner has real mental work to do, as difficult as he is capable of doing well, and that he has a motive for doing that work, a motive that must be first lawful and right in itself; secondly, strong enough, if possible, to be effective, and thirdly, the very highest and best in kind, which can, under the conditions, be brought to bear.

An important question, closely connected with this phase of the subject, is that which was discussed by Mr. Purslow in the last number of this Magazine, under the heading "The Effect of Examinations on School Culture." With much that was urged in that article every teacher must agree. I may perhaps venture, without seeming to be controversial, to question whether the writer of that article has traced the glaring and admitted evils of which he treats, to their true source. If, as has been shown, there can be but one method in education, if all real educational work must be done by the pupil himself in the voluntary exertion of his own powers, and if the teacher's taste is simply to mark out the course and guide and urge on the learners in it, it follows as a corollary that the judicious teacher will devise and constantly apply efficient tests, to enable him to know whether the student's work is being faithfully and intelligently performed. To neg-

lect this is to leave a very important part of a teacher's or professor's work undone. This manifestly means examinations of some kind, oral or written. But all teachers will agree that no oral test can be compared, in respect to precision and reliability, with a written one. The pen is really the great instrument of education. It compels clearness and precision, it holds up to ridicule the meaningless farrago of words, which, if well-sounding, may often cheat even a well-practised ear, with their semblance of sense. The examination is then the teacher's great and most reliable means of testing the reality of his pupil's progress.

Again, if, as all will probably admit, it is desirable and wise, in any well-considered system of education to have landmarks, at different stages of progress, or, in other words, if it is desirable and necessary to prescribe certain mental qualifications and attainments, as the conditions of admission to certain offices, or honours, it follows that here again the examination affords the only available test. That it is absolutely reliable no one will claim. Enough that it is indispensable, in the absence of some better test which is yet to be discovered.

What, now, are the great evils connected with these necessary tests of progress? They promote cramming rather than culture. But what is cramming? Is it necessarily and intrinsically bad? That depends upon the kind. If to-cram, is to stuff the memory with a mass of unconnected and indigested facts, if it is to let "committing" supersede thinking and to substitute rote for reason, then cramming is doubtless bad, irredeemably bad. If, on the other hand, to cram is to require the student to review rapidly the text book or course of lectures which he has carefully followed in detail, so as now to grasp and bind together in one compact and symmetrical whole the fundamental

facts and principles; or if it is to require him occasionally to summon all his intellectual forces for one great and not unduly prolonged effort, an effort adapted to strengthen the will, and to inure every faculty to endurance and subordination, then cramming is not necessarily bad. His after life, if it is worth living, will often put him thus upon his mettle.

The cramming that is "evil, only evil, and that continually," and that is therefore to be deprecated, appears to me to be the result of two causes, neither of which is a necessary adjunct of Examinations.

The first of these is to be found in the character of the questions put. The preparation of Examination questions is a work requiring the broadest culture and the soundest judgment. The examiner should have no pet questions, no favourite hobbies and, may I not add, no petty vanity capable of the faintest gratification from "catching" or puzzling the student. It is, I hold, quite within the power of the Examiner to so frame his questions as utterly to discourage any cramming in the bad sense, by rendering it useless and hopeless. It is in his power to beget the conviction that the student who has mastered the subject by grasping and making his own its broad truths and underlying principles, cannot fail, and no other can succeed. It would be easy, but I fear presumptuous, to select illustrations, both of success and of failure, in this fundamental matter, from the published examination papers of our public institutions, from the University downward. It is pleasing to note a gradual improvement in the character of the papers set in various quarters, though it is worthy of careful inquiry, whether there may not still be much room for improvement. The admirable expedient of varying, as far as practicable, authors and subjects from year to year, cannot

fail to be very helpful in the right direction.

The other and still more fruitful source of bad cramming is to be found in the insufficiency of the time usually allotted for preparation for the examinations at the various stages. This has its origin to a large extent in circumstances inseparable from the conditions of life in a comparatively new and by no means wealthy country. Many, whose earlier years have been mainly and necessarily devoted to manual toil, set to work after reaching manhood or womanhood, to fit themselves for professional pursuits, or to gratify the thirst for knowledge which has hitherto been as a consuming fire in their bones. Their ambition and resolve, and frequently their ardour and perseverance, are beyond all praise. But they evidently set out in the race under very unfavourable conditions for rapid progress, and, too often, feel themselves compelled by want of both time and means to cover the course in the shortest possible space. The policy is no doubt unwise, as even in these cases one, or at most two additional years, would generally make all the difference between a hasty half-superficial and wholly unsatisfactory training, accompanied too often with permanent injury to health, and a thorough, deliberate digestive mastery of the subjects undertaken, with precious margins for general reading and culture.

But the evil of undue haste is by no means confined to self-dependent students of mature years. The same feverish rush is no less painfully manifest in the case of the great majority of the younger pupils in our High-Schools, Collegiate Institutes, and Colleges, even when both time and means are ample for a deliberate course. This is due largely to the injudicious impatience of thoughtless parents, and largely to the restless spirit of the age and country infecting

the youth themselves. But I venture to ask whether it may not be still more largely due to the system of *payment by results*, in a manner compelling the teacher to "pass" the largest possible number of pupils, irrespective of other and better considerations. I must not occupy space with a discussion of the merits or demerits of this system in other respects. In this direction its effects upon health, upon enjoyment, upon true culture, are too often to be deplored.

If there is any truth or value in the foregoing hints this moral at least may be derived, that it is the duty as well as the interest of Examiners and Teachers of all grades, to aid by improved methods, by precept, by influence, and by securing where needed, corrected legislation in checking the evil tendencies complained of, and in perfecting the Educational System of Canada, until it shall become a model for all young nations, and a fruitful source of true culture and sound learning.

I NEED hardly assure you of the very great interest with which I take this opportunity of learning by conversation with you the manner and means by which you undertake the arduous, responsible, and important labours devolving on the teachers and students of a great Normal school. You observe that I come from a country long famous for the heed given to the teaching of the whole youth of the land, and as you are aware the parish schools of Scotland have been the instruments by which training has been given to men who have in every part of the world left their mark, and been an honour to the system founded of old by the wisdom of its Parliament. An equal love of perfecting to the utmost the educational facilities given to the people has led to the introduction in that kingdom of the most stringent measures, and of a heavy local taxation which is ungrudgingly and cheerfully borne to ensure that no child shall go untaught, and that none shall be taught anywhere but in a good building where he or she shall have as much pure air to refresh the body as sound instruction for the mind. The position given to the teacher has always been a high one. Indeed, I have often heard him called the most powerful person in the parish. And, gentle-

men, it is right that those who fill the responsible positions to which the students here present aspire should have all the authority which a well recognized position can give, for they are to take their places in the world as the commissioners of the army of civilization, and the peaceable and honourable leaders of the force which by industry, culture, learning and training is to advance the intellectual progress and the material prosperity of their country. You will have to deal with a long succession of men who come here to learn how to teach, and these gentlemen, will see as they pass under their instruction a yet larger number who, in time, will represent the manhood and power of our nation upon this continent. I shall only be able to watch your progress and theirs for a brief period, but I hope I shall be able to show the interest I take in your success, and I shall in after years not cease to follow with the fullest and warmest sympathy, the progress of the great cause of education, and the effect produced by your efforts and labours on the welfare and greatness of the Canadian Dominion."—*His Excellency the Governor General to the Students of the Normal School, Ottawa.*

CONTRIBUTORS' DEPARTMENT.

THE NECESSARY LIMITS OF
CONTROVERSY.

WE have received a temperate and well conceived letter, signed "Canadian Catholic," on the subject of the "Reply of the Nineteenth Century," a paper which appeared in our last number. The writer takes objection to the course we pursued in inserting this article, while at the same time, by the footnote attached to it, we "all but precluded response." Besides this, he alleges that the matter contained in that article is calculated to affect the many Catholics who take an interest in educational matters; and this being so, we feel it a duty which we owe to our correspondent and to our readers generally, to explain the position we take in the matter.

In the first place, it is not within our province to meddle with questions of doctrine or theology. Questions of morals may be occasionally treated of, with due caution, even in a non-sectarian periodical; for the same system of moral teaching underlies almost all sects, and the differences that do exist are rather in the methods and degrees of enforcing moral discipline, than in the root-principles from which that discipline is evolved. The real difficulty does not come in until we approach the battle-field of history. It is in history that all parties seek for weapons with which to support their own cause, and to defeat their opponents. It is to the interest of both parties alike, that every possible light should be thrown upon past events, and that no discussion on the subject should be stopped without valid reasons. Moreover, when we approach the consideration of any historical event, we must remind a "Canadian Catholic," that religious party-lines cease to be drawn with the rigour and precision that obtains when polemics are on the *tapis*. There are several

well-known doctrines, to deny or to attack which, in a non-sectarian magazine, would be an outrage upon every member of the Church that held those doctrines.

But to pronounce an opinion upon a matter of history, such as the gradual decadence of the temporal power of the See of Rome, does not necessarily offend every Catholic, neither does it follow that, because a man is offended thereby, he must be a Catholic.

On such a question parties divide, as it were, in a different plane of cleavage; political and national sympathies enter largely into the elements that form an opinion, and many a staunch Protestant would prefer to see the Papal States intact, whilst as good Catholics have rejoiced to see His Holiness confined to the exercise of a vast spiritual power, and have foretold, from that very circumstance, an increase of his influence and authority over the world at large.

It is in this distinction that we consider the *nodus* of the difficulty must be sought and unravelled. Any topic, the mooted of which is offensive, *per se*, to a man who belongs to any religious body, simply on account of his belonging to that body, should not be tolerated in a magazine of this nature. Any topic as to which men of all shades of belief may rank themselves on either side, should be held permissible. And we cannot conceal from ourselves the fact, that such topics *do* exist, and that the liveliest interest is felt in them. To say that such "burning topics" as the past history of education, which was for many years identical with the history of our correspondent's Church, are not to be handled at all in our pages, would be to debar our readers from information which they will naturally expect to receive from us. Details of bygone historical events, especially of an educational or social

nature; will, we hope, form the text upon which our correspondents, of all shades of opinion, will hereafter contribute many a pleasant paper to our pages. To prevent the magazine from falling into too narrow a groove, by merely treating of professional educational matters, some such papers are imperatively needed; and we hope a "Canadian Catholic" will not scruple to take us at our word, and test our impartiality by sending us a contribution on a cognate subject.

We have used the expression "burning topic," and that will be in itself sufficient to remind our contributors that such subjects must be handled with caution. The article of F. R., having been written in reply to an aggressive series of papers, no doubt shows somewhat of that eagerness to defeat an adversary which is inseparable from controversy. It is for this very reason that we desire to avoid controversy, and should prefer it if papers of this description were entirely independent of each other, and not written with the view of replying to or confuting a previous writer.

Our explanation has taken longer than we anticipated, but it is as well, at the outset, to define clearly the position which we intend to take, in order to avoid misapprehensions in the future.—EDITOR, C. E. M.

THE SCHOOL OF PRACTICAL SCIENCE.

THE prospectus for the second session of the School of Practical Science, to begin on the 1st of October next, has just been issued. The lectures are to be open to both "regular" and "occasional" students. Regular students are those who purpose to take a three years' course for the Diploma of the School in Engineering, Chemistry, or Assaying and Mining Geology. The fees are \$30 for the first session; \$40 for the second; and \$50 for the third. Occasional students are admitted to any of the courses of instruction on payment of fees varying from \$10 to \$50 per course. Students taking a practical course can attend the lectures on

the same subject free of charge. The courses open to occasional students are: *Engineering*, including Drawing, Surveying and Levelling, Geodesy and Practical Astronomy, Applied Mechanics, and the Principles of Mechanism; *Chemistry*, both General and Applied, including practical instruction in the Preparation of Chemical Compounds, Qualitative Analysis, Quantitative Analysis, Elementary Practical Chemistry, Physiological Chemistry, and Chemistry in relation to Hygiene and Forensic Medicine; *Mineralogy* and *Geology*, including practical courses in Blowpipe Practice, Blowpipe Analysis and Determinative Mineralogy, Assaying, and Mining Geology; *Biology*, including practical courses in Biology, Vertebrate Anatomy, and Animal Histology; and *Mathematics* and *Natural Philosophy*. The Physical Laboratory will be ready for the admission of students at the commencement of the session of 1879-80, and will be furnished with a large collection of instruments of precision for testing the laws of Dynamics, Sound, Light, and Heat.

There is, then, every prospect that at the commencement of the session in October next, the Province will at last be in possession of an institution where the latest results of modern science can be taught in a manner worthy of the importance of the subject. This is a matter for congratulation, and it is to be hoped that the number of students will be such as to make the institution a thorough practical success. In the meantime, and with a view to further that desirable object, I would venture to make a suggestion. With all respect to the able Principal of the School, it seems to me that a mistake has been made in doing away with the evening classes which proved so attractive when the School was located in the Mechanics' Institute. It is the custom, I believe, to have evening classes in similar institutions in England, such as the London School of Mines. Presumably the School in this city has been established for the convenience, not of its Professors, but of the public, with whose money it has been built and equipped. It will hardly be denied, then, that it should be so conducted as to be of the widest possible

usefulness; nor will it be denied, I think, that its usefulness will be greatly increased by having evening classes in addition to those held during the day. Many persons whose time is fully occupied during the day, would be glad to pay even larger fees than those charged to day-scholars, in order to get a sound practical knowledge of one or more branches of science by attending classes two or three evenings a week. The fees could form an addition to the salary of the Professors who gave the additional time and labour. It would be easy to arrange the proposed classes so as not to be burdensome on any one of the Professors. As an experiment to begin with, the classes might be held on only the first three nights of the week. On Monday evening there could be a class in Physics; on Tuesday one in Chemistry; and on Wednesday one in Biology, with practical courses in each. Two hours might be profitably spent on each evening,—one with the lectures, and the other with the practical courses. In this way no Professor would be called upon to give up more of his time than one night a week. Surely there ought not to be any difficulty in carrying out this suggestion. J.

EXAMINATIONS IN GEOMETRY.

MR. EDITOR, I write for information. Has there been any agreement among Examiners, or rule established by those in authority, to govern students in *writing* and *demonstrating* propositions in Geometry, at our various examinations? I have made diligent enquiries in many directions but found little satisfaction. Some would have every word written in full, even to *Quod erat demonstrandum*; while others give a list of symbols, saying, these you shall use and no more; but why these and no more does not appear. I am informed that no examination passes without a discussion among examiners upon this question. The general rule seems to be, "use no algebraic symbols;" but who is to draw the line and tell us what symbols are algebraic and what geometric? May we go as far as Hamblin Smith goes? If his mode

is accepted in examinations for certificates will it also be accepted in Toronto University?

Another, and yet more important question, arises in regard to demonstrations. Must Euclid be followed in all cases? or may we follow Hamblin Smith? If we deviate as far from Euclid as Smith, may we not go yet further and write *any* logical demonstration? The importance of the first question will be evident from a comparison of the length of the following:—

Euclid—Let the straight line EF , which falls upon the two straight lines AB , CD , make the exterior angle EGB equal to the interior and opposite angle $GH D$, upon the same side of the line EF ; or make the two interior angles BGH , $GH D$, on the same side together equal to two right angles. Then AB shall be parallel to CD .

Because the angle EGB is equal to the angle $GH D$, (Hyp), and the angle EGB is equal to the angle AGH (I—15), therefore the angle AGH is equal to the angle $GH D$; (ax. 1) and they are alternate angles, therefore AB is parallel to CD (I—27.)

H. S. Let the st. line EF , falling on st. lines AB , CD , make $LEGB$ = corresponding $LS GH D$, or $LS BGH$, $GH D$ together = two rt. LS , then in either case, AB must be $\parallel$ to CD . $\therefore LEGB$ is given = $LGHD$, (Hyp) and $LEGB$ is known to be = $LAGH$, (I. 15) $\therefore LAGH = LGHD$, and these are alternate LS ; $\therefore AB$ is $\parallel$ to CD . (I. 27.)

At a glance any one will see that at least one third of the time is saved by the last mode, a consideration of great importance in competitive examinations. The importance of the second question will appear from a comparison of the two methods of demonstrating the fifth proposition B. I., as in Pott's Euclid and Smith's Geometry. Hoping for light; and apologizing for all this space, yet thinking the questions worthy of it, I am, yours truly, TEACHER.

[We would like to hear from Mathematical Masters on this subject, which is one, as our correspondent indicates, upon which there is a variety of opinion.—Math. Ed., C.E.M.]

ARTS DEPARTMENT.

EXAMINATION PAPERS AND SOLUTIONS.

[NOTE.—We publish the remaining papers set at the December Examinations for Second-class Teachers and Intermediate, with Solutions to the Arithmetic, Algebra, Euclid and Natural Philosophy papers. A number of selected questions in Algebra, kindly sent us by a correspondent, will be found in the department, the solutions to which will be given next month.—ARCH. MACMURCHY, MATH. EDITOR, C.E.M.]

BOOK-KEEPING.

1. Define Bills Payable, Interest, Draft, Days of Grace.

2. What is a Trial Balance? When the Dr. and Cr. columns are equal are the Ledger accounts necessarily correct? Give reason for your answer.

3. Define Cash Account, Stock Account, Loss and Gain Account.

4. Give John Brown's Journal entries for the following:—May 1st, 1876. John Brown's Ledger shows the following Resources and Liabilities:—Real Estate, \$1,000; Mdse. on hand, \$600; Bank account shows balance to his credit, \$200; He holds a note against James Muir to the amount of \$250; John Smith's account shows a balance of \$600 in favour of John Smith. His Blotter contains the following entries:—

2nd—Paid, for rent, \$120; and sold mdse., for cash, \$80. 3rd Sold George Wilson \$1,000 worth of mdse., and received in payment cheque on bank \$600, cash \$100, balance to remain on account. 4th—Bought mdse. from A. B., and gave him cheque on Bank in full for \$500. 5th—Paid John Smith cash, on account, \$450. 6th—Brown received George Wilson's note at 3 mos. for the balance of Wilson's account, and deposited the note in the Bank. 8th—Drew from the Bank, cash, \$800, with which bought mdse., \$200, lent A. Jones \$100 of it, and with balance bought a note against John Smith, face of note \$550.

5. Write out the cheque received from Wilson on the 3rd, and the note given by Wilson on the 6th, making the note negotiable.

6. Post the following accounts in the above (4)—Mdse., Cash, George Wilson.

ALGEBRA.

The following questions in Algebra selected from various sources, will furnish good exercise to candidates for First Class Certificates and University Matriculation Honours. Solutions will be given in a future number.—W. J. ROBERTSON, B.A., *Coll. Inst., St. Catharines.*

1. If $2a=y+z$, $2b=z+x$, $2c=x+y$, find value of $2a^2b^2+2b^2c^2+2a^2c^2-a^4-b^4-c^4$ in terms of x , y , z , and express $(x+y+z)(xy+yz+zx)-xyz$ in terms of a , b , c .

2. Prove that $(a^2+b^2+c^2)^3+2(bc+ca+ab)^3-3(a^2+b^2+c^2)(ab+bc+ca)^2=(a^3+b^3+c^3-3abc)^2$.

3. If $-\frac{1}{b} + \frac{1}{c} = -\frac{4}{a}$, shew that $(a+b-c)^3 + 2(b+c-a)^3 + (c+a-b)^3 = 2(b+c)^3$.

4. Find the numerical value of $\frac{c}{b} \cdot \frac{\sqrt{a} + \sqrt{c}}{\sqrt{a} - \sqrt{c}}$ when $a(b-c)^2 - c(b+c)^2 = 0$.

5. If $x+c$ be the H.C.M. of x^2+ax+b , and $x^2+a_1x+b_1$ shew their L.C.M. will be $x^3+(a+a_1-c)x^2+(aa_1-c^2)x+(a-c)(a_1-c)0$.

6. What value of y will make $(2y^2+y)x^2 + (11y-z)x+4$ and $2(y^3+y^2)x^3+(11y^2-2y)x^2+(y^2+5y)x+5y-1$ commensurable?

7. Shew that $x^4+px^3+qx^2+rx-s^2$, can be resolved into rational quadratic factors, if $s^2 = \frac{r^2}{p^2-4q}$.

8. If the equation $x^2+px+q=0$, have equal roots, shew that the equation $ax^2+pb(a+b)x+q(a+2b)=0$, has one of them, and find the other.

9. Eliminate x, y, z , from the equations

$$\left. \begin{aligned} x^2(y+z) &= a^3 \\ y^2(z+x) &= b^3 \\ z^2(x+y) &= c^3 \\ xyz &= abc \end{aligned} \right\}$$

10. Eliminate x between the equations

$$x^3 + \frac{1}{x^3} + 3\left(x + \frac{1}{x}\right) = m; \quad x^3 - \frac{1}{x^3} - 3\left(x - \frac{1}{x}\right) = n.$$

11. Shew that if $x^2+py^2+qz^2$ is exactly divisible by $x^2(ay+bz)x+abyz$, then

$$\frac{p}{a^2} + \frac{q}{b^2} + 1 = 0.$$

12. If a, b, c are in Harmonic Progression, prove $a^2+c^2 > 2b^2$.

13. Sum to infinity $1^2x+2^2x^2+3^2x^3+4^2x^4$, and hence find the sum of

$$1^2 + \frac{2^2}{2^2} + \frac{3^2}{2^3} + \frac{4^2}{2^4} + \dots$$

14. The difference between the $(n-1)$ th and n th terms of an H.P. is $\frac{1}{an^2+bn+c}$, find the relation between a, b and c .

15. Shew that the sum of the products of n quantities c, c^2, c^3 , etc., taken m , and m together is

$$c^{\frac{m(m+1)}{2}} \times \frac{(c^n-1)(c^{n-1}-1)\dots(c^{n-m+1}-1)}{(c-1)(c^2-1)\dots(c^m-1)}$$

16. There are $(p+q)$ numbers, a, b, c , of which p are even and q odd. Shew that the sum of the products taken 3 and 3 to-

gether of the quantities $(-1)^a, (-1)^b, (-1)^c$ is $\frac{1}{8}$ of $\{(q-p)^3-3(q^2-p^2)+2(q-p)\}$

17. If $(1+x)^n=1+A_1x+A_2x^2+A_3x^3$ &c., and $(1+x)^{-n}=1+B_1x+B_2x^2+B_3x^3$ &c., shew that $A_3+A_2B_1+A_1B_2+B_3=0$.

ARITHMETIC SOLUTIONS.—DEC. 1878.

1. Book-work. £7 7s. 7d.

2. Book-work. 121, 13728.

3. Book-work. $224 \times \frac{1}{4} = 32$ lbs. of chicory; $\therefore 192$ lbs. of coffee. Again, $192 \times \frac{1}{5} = 30\frac{2}{5}$ lbs.; $\therefore 38\frac{2}{5}$ lbs. $- 32 = 6\frac{2}{5}$ lbs. of chicory to be added.

4. $5 \times 3\frac{1}{3} = 16\frac{2}{3}$ ft. in bottom: $5 \times 2\frac{1}{3} \times 2 = 7\frac{2}{3}$ ft. in sides: $3\frac{1}{3} \times 2\frac{1}{3} \times 2 = 14\frac{0}{3}$ ft. in ends; $\therefore$ total area of inside $59\frac{0}{3}$ ft. $= 59\frac{0}{1}$ yds. at 90c. a yd. = \$55. Ans.

5. .0025168+; .341246+. For *contracta* method, see Robinson's or Brooke Smith's Arithmetic.

6. A note for \$730 drawn at 90 days at 8 %, will be worth 90 days hence, \$744.40.

If discounted 45 days before maturity, its present value at 10 % will be \$744.40 $+ \$7\frac{3}{9}$ or \$734 $\frac{4}{9}$. Ans. ($\$7\frac{3}{9}$ is P. W. of \$1 due 45 days hence @ 10 %).

7. $\$(52-4) = \$48$ P.W. $\therefore$ \$4 int. on \$48, or int. $\frac{4}{8}$ or $\frac{1}{2}$ of principal for 8 months. Again, $\$(75-5) = \$70$ P.W. $\therefore$ \$5 int. on \$70 or $\frac{5}{7}$ or $\frac{1}{4}$ of principal for unknown time. $\therefore$ time will be $8 \times \frac{1}{4} \div \frac{1}{2}$ or $6\frac{1}{2}$ months.

8. $28c. \times \frac{11}{100} = 32\frac{1}{2}c.$ selling price of 1st kind to gain 15 %; $42c. \times \frac{20}{100} = 50\frac{2}{5}c.$ selling price of 2nd kind to gain 20 %. But average price 35c. $\therefore$ gain 1st kind $(35-32\frac{1}{2}) = 2\frac{1}{2}c.$ a lb., and $50\frac{2}{5}-35 = 15\frac{2}{5}c.$ a lb. loss on 2nd kind. To gain 1c. we will have to take $\frac{5}{14}$ lb. 1st.; and to lose 1c. $\frac{5}{7}$ lb. of 2nd; $\therefore$ mix in proportion of $\frac{5}{14}$ of 1st to $\frac{5}{7}$ of 2nd, or 11 : 2.

9. $4 \times 3 \times \frac{3}{4} = 9$ c. ft. Again, $2700 \times 3 \times 2\frac{1}{2} \times .004 \times \frac{1}{2} = 6\frac{3}{4}$ c. ft. $\therefore$ loss $(9-6\frac{3}{4})$ c. ft. $= 2\frac{1}{4}$ c. ft., or 25 %. Ans.

ALGEBRA SOLUTIONS.

1. (b) $(\frac{1}{2}x-y)^3 - (x-\frac{1}{2}y)^3$ is exactly divisible by $(\frac{1}{2}x-y) - (x-\frac{1}{2}y)$ or $-\frac{1}{2}(x+y)$; $\therefore$ exactly divisible by $x+y$. Or, put $x+y=0$, write x for $-y$ in the expression $(\frac{1}{2}x-y)^3 - (x-\frac{1}{2}y)^3$ and the result is $=0$. $\therefore x+y$ is a factor.

2. (a) Book-work.

$$3. (a). (a+b)^4 + (a-b)^4 - 2(a^2-b^2)^2 = \{(a+b)^2\}^2 + \{(a-b)^2\}^2 - 2(a+b)^2(a-b)^2 = \{(a+b)^2 - (a-b)^2\}^2 = 16a^2b^2.$$

(b). $\{(a+c+b)(a+c-b)\} \cdot \{(a-c+b)(-a-c+b)\} = \{(a+c)^2 - b^2\} \cdot \{b^2 - (a-c)^2\} = \{(a^2+c^2+2ac-b^2)(b^2-a^2-c^2+2ac)\}$. But $c^2 = a^2 + b^2$. Substituting and simplifying we get $(2ac \times 2a^2)(2ac - 2a^2) = 4a^2c^2 - 4a^4$. Substituting as above, the expression becomes $4a^2(a^2+b^2) - 4a^4 = 4a^2b^2$.

4. Book-work. (b). $\frac{b}{8a}$

5. Let x equal rate per hour of "City," $y =$ rate per hour of "Rothsay." $\frac{35}{x} + \frac{35}{y} = 5\frac{1}{4}(1.)$

$\frac{42}{x} + \frac{42}{y-1} = 6\frac{1}{2}$. Eliminate x by multiplication, resulting $=n$ will be $y(y-1) = 210$, solving, $y = 15$ or -14 . Substitute positive value in (1) and x is found to be 12.

6. (a). Book-work. (b). $4\sqrt[3]{3}$. (c). $5\sqrt[3]{7}$.

(d). $a^{\frac{5}{2}} - b^{\frac{3}{2}}$. (e). $x - x^{\frac{1}{2}}y^{\frac{1}{2}} + y$.

7. (1). $x = \frac{a}{3}$, $y = \frac{a}{4}$.

(2). After transposing add 28 to each side of the $=n$ so as to get a quadratic in the quantity under the radical sign, a very common expedient. Solving in the usual way, $x = 4$ or -9 , or $\frac{5}{2} \pm \sqrt{-51}$.

8. Let $a =$ middle number : then $(x-1)$

(x) $(x+1) = 45x$

$x^2 - 1 = 48$

$x^2 = 49$

$x = \pm 7 \therefore$ Nos. 6, 7, 8, or -8 ,

$-7, -6.$

9. (a). $a(x-a)(x-b) = a\{x^2 - (a+b)x + ab\}$. But $a+b = -\frac{b}{a}$ and $ab = -\frac{c}{a}$

$\therefore a\{x^2 - (a+b)x + ab\} = a\{x^2 + \frac{b}{a}x + \frac{c}{a}\} = ax^2 + bx + c = 0$. (See Theory of Quadratics.)

(b). $(2a^2 - 2ab)x + ab - b^2 = 0 \therefore x = -\frac{b}{b}$. But when roots are $=l$ $b^2 = 4ac$ and $2a$

roots of $ax^2 + bx + c = 0$, become each $-\frac{b}{2a}$ (See Theory of Quadratics).

$\frac{m}{x} = \frac{n}{y} = k. \therefore m = kx, n = ky$.

Substitute these values in $\frac{m^2}{a^2} + \frac{n^2}{b^2}$, and expression becomes

$\frac{k^2x^2}{a^2} + \frac{k^2y^2}{b^2} = k^2$

$(\frac{x^2}{a^2} + \frac{y^2}{b^2}) = k^2$.

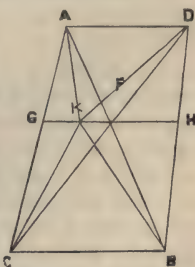
Also $\frac{m^2 + n^2}{x^2 + y^2} = \frac{k^2x^2 + k^2y^2}{n^2 + y^2} = k^2 \therefore$ equality is proved since each expression $= k^2$.

EUCLID SOLUTIONS.

2. (a) 120°. (b) 72°.

8. ABC being the given $\triangle$, draw a straight line through A parallel to BC. Bisect BC in D, draw DE at right angles to BC. Join BE, EC. BEC is the required $\triangle$.

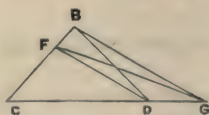
9. Easily seen $\triangle AFC = \triangle BFD$. If F be not the middle point, let K be. Join KA, KC, KB, KD. Then $\triangle AGK = \triangle DHK$, also $\triangle GKC = \triangle BKH. \therefore \triangle AKC = \triangle DKB$. Now $\triangle$



AKC is $<$ $\triangle AFC$ or $\triangle DFB$. Hence $\triangle DKB$ is $<$ $\triangle DFB$, which is absurd. $\therefore K$

is not the middle point, and in same way any other point but F may be shewn not to be the middle point. $\therefore$ F is the middle point.

10. Join DF, through B draw BG parallel to FD, meeting CD produced in G. Join FG. Then $\triangle FCG$ is required $\triangle e$. For $\triangle BFD = \triangle FDG$, add $\triangle FCD$ to each. $\therefore$ &c.



11. Common deduction follows immediately after dropping $a \perp r$ on the remaining side by Euc. Bk. II. Props. 12 and 13.

NATURAL PHILOSOPHY SOLUTIONS.

1. Constructing a $\triangle$ whose sides are parallel to the three given forces (weight, reaction of plane and tension), we find that these sides are as $\sqrt{3} : 1 : 1$, i.e.,

$\frac{100}{\sqrt{3}} = \frac{T}{1} = \frac{R}{1}$: from which T and R can be found.

2. The centre of gravity is at distances of $4\frac{1}{2}$ and $5\frac{1}{2}$ from the supports. Take moments about one of the supports, we have

$150 \times 4\frac{1}{2} = 10 \times P$, or $P = 67\frac{1}{2}$; $\therefore$ the pressure on the other $= 82\frac{1}{2}$.

3. If w be weight of plank and a and b distances of centre of gravity from bench, we have $200b = a \times w$. $120(b+2) = (a-2)w$. $60(b+4) = (a-4)w$, or $w = 360$ lbs.

4. For force exerted by the horse in pounds we have $\frac{1250 \times 18}{150} = 150$.

5. Height of tube $= 15$ 30 in., area of base of vessel $= 15$ sq. in; $\therefore$ pressure on bottom of vessel in ozs. $= 15 \times \frac{9 \times 30}{1728} \times 1000 = 156\frac{1}{4}$.

weight of water $= 15$ pressure on table $= 27$ c. in. in tube $+ 27$ c. in. in vessel; $\therefore$ pressure on table in ozs. $= \frac{54}{1728} \times 1000 = 31\frac{1}{4}$.

6. Let x = height of atmosphere in ft.; pressure of air on sq. ft. in ozs. $= 1.2916 \times x$. And pressure of column of mercury 30 in. in

height, on sq. ft. $= \frac{30}{12} \times 13.596 \times 1000$ ozs.,

and therefore $1.2916x = \frac{30}{12} \times 13.596 \times 1000$, or $x = 26.316$ ft.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

WEST HURON TEACHERS' ASSOCIATION.

—The above Association of Teachers held their regular half-yearly meeting in the Central School, Exeter, on Friday and Saturday, January 24th and 25th. The attendance was large and the greatest interest and enthusiasm were manifested throughout the meeting. A considerable portion of the time was taken up by Dr. McLellan, who gave many useful hints and much valuable instruction on the method of Teaching, Reading, Arithmetic and Algebra. In Algebra, particularly, his unique method of factoring, and his short and simple solutions

of difficult problems were much admired. On the evening of Friday he delivered his popular lecture on "The Future of Canada," to a large and highly appreciative audience.

Inspector Miller, as representative to the Provincial Association, gave an interesting and detailed report of the last meeting of that body, after which he took up the subject of military drill in connection with school work, pointing out the many benefits arising from a regular course of calisthenics and physical training. The subject was made practical by the teachers adjourning to a large vacant room and going through a

number of movements under the direction of Mr. Miller.

Mr. H. J. Strang, B.A., of Goderich, dealt in a very interesting and instructive manner with the difficulties analysis and parsing presented to him. Miss Speer ably illustrated her method of teaching Canadian History to a class of beginners, and Mr. Gregory treated Physical Geography in a similarly able manner. Mr. S. P. Halls, in a very lucid manner discussed the method of applying the principles of the Triangle of Forces to the solution of problems in Natural Philosophy. A resolution was subsequently passed conveying the thanks of the Association to Dr. McLellan for his able lecture; and a motion, expressive of the value of military drill, was also made by the meeting, and unanimously agreed to.

W. R. MILLER, *Secretary*.

RUSSELL COUNTY TEACHERS' ASSOCIATION.—The semi-annual meeting of this Association took place in Duncanville, on January 9th and 10th. After the formal business was despatched, Mr. Hill, of Bearbrook, read a paper on "The Introduction of Grammar to Junior Classes." After some discussion on this subject, Mr. W. R. Riddell, B.A., LL.B., &c., Mathematical Master, Ottawa Normal School, addressed the Association on "The Introduction of Algebra to Classes, and the Treatment of Simple Rules." In the afternoon, Mr. Riddell, by special request, showed his method of teaching Synthetic Division, and of contracting Multiplication. After the discussion of these topics and many questions being asked and answered, he addressed the Association on "How to interest Pupils in the Study of Arithmetic." The Society determined the time and place of next meeting, and adjourned.

A public entertainment was held in the Temperance Hall in the evening, which was largely attended by the citizens of Duncanville and vicinity. Mr. Riddell delivered a popular lecture on "The Philosophy of Dreaming," which was well received. Several Dialogues, Recitations, and Songs followed, interspersed by music.

On Saturday, the morning was taken up by papers from Mr. J. McMillan, B.A., of the Ottawa Collegiate Institute, and Mr. John Munro, Principal of the St. George's Ward School. Mr. McMillan had for his subject, the "Discussion of some difficult words in Parsing," and his remarks brought on a lively and interesting debate on several points. Mr. Munro showed practically "How to manage a Fourth Class in Teaching Reading." He had to stand the fire of a multiplicity of questions, all of an essentially practical character, which he answered to the satisfaction of the audience. At the afternoon session, Mr. Riddell took up "How to Teach Fractions," and Mr. A. Smirle, Principal Central School, E. Ottawa, "The Use of the Blackboard," both of which subjects were discussed by many members of the Association. After votes of thanks to the visiting gentlemen, the Association adjourned, well pleased with the success of the Institute.

A pleasing feature in connection with the meeting was the large proportion of visitors not engaged in teaching who attended and took an interest in the work going on.

THE NORFOLK TEACHERS' ASSOCIATION met on 17th and 18th January, at Simcoe, eighty teachers being in attendance and a deep interest being manifested. The subjects discussed were Grammar (Mr. Cron leading), English Literature (Mr. Ferguson), History (Mr. Wm. H. Smith), Algebra (Mr. Merchand), and Writing (Mr. G. McIntosh.)

On Friday evening a public meeting was held, at which Rev. Mr. Alexander lectured on "the Lady of the Lake" and a visit to the Trossachs. Richard Lewis, Esq., of Toronto, gave several dramatic readings.

On Saturday Mr. Lewis lectured on Reading and Elocution for over four hours, giving a most masterly and exhaustive exposition of the subject. Officers 1879: President, Horatio A. Courtland; Vice President, W. H. Smith; Secretary, Rev. G. Grant, B.A.; Committee of Management, Messrs. Parsons, Chapman, Knowles, Weston and Dennis.

CONTEMPORARY LITERATURE.

ANNUAL REPORT OF THE PUBLIC AND HIGH, ALSO OF THE NORMAL AND MODEL, SCHOOLS OF THE PROVINCE OF ONTARIO FOR THE YEAR 1877, WITH APPENDICES. By the Minister of Education. Printed by order of the Legislative Assembly. Toronto: Hunter, Rose & Co.

The Report of the Minister of Education for 1877, is before us, and as we look over it we can realize something of Rip Van Winkle's feelings on waking up after his long sleep. A number of documents appear in it that had passed from our remembrance, and others obtrude themselves which, for their faults, we had willingly forgotten. It is greatly to be regretted that a report so valuable to the public should appear a year after its date. Might not the Minister, by the infusion of increased energy into his subordinates, and by a little extra exertion on his own part, get his Report out for the previous year before the end of the session of the Legislature in the succeeding one? Surely if in England the Report on Elementary Education for Great Britain for one year can appear in the following June, we, who are supposed to be not quite so slow-going, might have ours, for a population not one-twentieth the size, out by the middle of March. At any rate, we see no great necessity, save as a matter of official etiquette, for holding back the Report—presuming it has long ere now been ready—until the House meets. It is not so clear that its members are those most interested in its returns, and therefore they are not entitled to any excess of courtesy. Perhaps public interest in Parliamentary Blue books would be greater, and to the advantage of the subjects whereof they treat, if the traditional etiquette that withholds them from the public eye until their facts are stale, gave place to the consideration of the public interest and the public service. What motive of political expediency

may be concealed in refusing to accept common sense suggestions in this matter, we are not, of course, careful to answer. But to the report:—

The number of scholars attending the public schools, in 1877, was 490,860, being only 323 in excess of that of the previous year; though the school population, that is, children between the ages of 5 and 16 years, showed a decrease of 7,446. In 1876 there was an *increase* of school population of 1,167, and an increase of the total attending school of 16,296. This contrast is further increased in the returns of those not attending any school; in 1876 there were 9,260, while in 1877, the number swells up to 15,074, though during this period we are told the school population decreased 7,446! Surely some explanation is needed to make these returns intelligible; or are they untrustworthy?

The average daily attendance was 44 per cent., an increase of one per cent. upon the previous year. It is far from satisfactory to know, however, that only 44 out of every 100 children received the full benefit of our public school system. The evils of irregularity of attendance, which this lamentable state of things implies, are so forcibly pointed out in the Report of the Inspector for South Hastings, that we cannot do better than quote his words:—

“To remedy this great evil in our Schools calls forth the serious attention of every parent and ratepayer, for it neutralizes the benefits to be derived from the best arrangements, and the labours of the best Teachers. A child may attend School, yet so irregularly, or at intervals so far apart, that it will be fortunate if at the end of the year he knows as much as at the commencement.”

The total expenditure for the year was \$3,073,489; this is almost double what it was

ten years previous when the school attendance was 401,643, or more than three-fourths of what it is now ; so that with one-fourth more scholars, double the amount of money is expended—a somewhat significant fact!

There were 5,140 schools, giving employment to 6,468 teachers, of whom there were 400 more females than males. The increase of teachers for the year was 283; and, since the increase of scholars was but 323, we come to the pleasing conclusion that there are fewer scholars for each teacher to manage—and a step towards a consummation devoutly to be wished.

In 1876, teachers of the Methodist denomination took the lead in numbers, but they were slightly outstripped by the Presbyterians in the following year. It is worthy of remark that out of 812 Roman Catholic teachers 478 are employed in the Public Schools, the remainder working in their own Separate Schools.

In regard to certificates, 250 teachers hold first-class provincial, 1,304 hold second-class, and 3,926 hold new County Board third class. These are exclusive of old County Board certificates which are yearly decreasing. With such a preponderance of third class teachers it behoves our educational authorities to use their utmost wisdom in improving and extending the means provided for their training. It is gratifying to find that the financial position of the teacher is improving, since there is an increase of \$200,000 upon the salaries for the year. The average salary of male teachers in cities was \$735, in towns \$583, and in counties \$379; of female teachers in the same, \$307, \$269, and \$260 respectively; this shows an average increase for male teachers of \$14, and for female teachers of \$12. It is odd to find, however, that while the highest salary paid in towns is \$1,100; in cities it is only \$1,000.

The number of High Schools and Collegiate Institutes in the Province is 104, with 9,229 scholars, who are taught by 280 teachers at an average salary of \$756, or an increase of \$23 upon the previous year. Twenty-seven of these schools charge a quarterly fee ranging from 25 cents to \$5—the remainder are free. The total expenditure was \$343,710,

being at the rate of \$37.10 per pupil; the cost per pupil in the Public Schools being \$6.25.

In the High Schools there were 33 pupils to each teacher, in the Public Schools there were 76. We are unable from the official tables to say what the average attendance in the High Schools was, nor are there any details as to salary to enable us to state what was the highest and lowest salary paid; but any defects in these are amply compensated for by the able and judicious report of the High School Inspectors, from which we gather that the average attendance for 1877 was 56 per cent. of those entered on the registers. Did our space permit, we would gladly deal with this report in greater detail, but we content ourselves by quoting the following suggestion in reference to our National University; which, to some extent, runs parallel to a few remarks we ventured in all friendliness to make in regard to this Institution in an other place.

“We hold further that, as the matriculation examinations of the University of Toronto practically determine to a great extent the work of the High Schools, and as a national university does not exist for itself alone, but for the educational interests of the community that supports it, the curriculum for these examinations should be so framed as to encourage in the High Schools the study of those subjects which the general interests of the community require to be taught there. Chemistry, we maintain, is one of these subjects, and we desire to place on record our conviction that the Senate of the Provincial University in ignoring its claims as a subject for matriculation in arts, when they last revised their curriculum, adopted a policy directly injurious to higher and secondary, and indirectly injurious to primary education.”

The Report of the Normal Schools contains ample information as to the number of students, the locality they come from, etc., but nothing of the cost of these institutions apart from the Model Schools. After a good deal of search we found that the attendance at the Normal and Provincial Model Schools was 900; their cost was \$43,166.34, being at the rate of \$48 per pupil. This

makes a model school scholar cost more than seven times as much as a scholar in the public schools.

There is a great unanimity in the Public School Inspectors' reports upon the good results that have followed the establishment of County Teachers' Associations, and County Model Schools; upon the evils of irregular attendance; and the frequent change of teachers. A very decided opinion is expressed in favour of Township Boards, and in the thoroughly business-like conference of Inspectors upon the establishment of schools in outlying districts, presided over by the Deputy Minister, Dr. Hodgins, at Belleville, these gentlemen took time by the forelock and made "a strong recommendation in favour of the establishment of Township Boards in the Townships of unorganized districts"—a wise and timely recommendation.

In no inspectorate do we find that the modicum of four months' compulsory attendance at school, as provided for by the law, is enforced. This is a piece of fancy legislation of which we have too much on our statute book. Yet in several of the Inspectors' reports attention is called to the number of children who would be benefitted by a wholesome system of compulsion.

The intelligence, public spirit, and unselfish interest manifested by the Inspectors in these reports warmly commend them to trustees and to the public, both of whom, we fear, are but too little aware of the arduous and disinterested character of their work.

The report of the Sub-examiners on the intermediate examination of July last, is valuable, and did our space permit we could not serve High and Public School Teachers better than by giving it *in extenso* in our columns. They state that Arithmetic and Grammar showed the best results, English Composition, we regret to say, the worst. Attention is called to the necessity of using throughout a proposition of Euclid letters corresponding with those in the diagram. The employment of Roman capitals in the diagrams is recommended, and that of numerals deprecated. It is recommended to begin the statement, construction, and demon-

stration as new paragraphs. They ask "Should any corrections made by the candidate on the spelling paper be allowed?" They report that too little attention is paid to the *kind* and *connection* of the clauses in grammatical analysis—"a branch of the subject which affords by far the greatest mental discipline;" and they might have added—Culture.

In the business-like report on the County Model Schools, we observe that a number of these schools are yet in charge of Principals whose qualifications are below those required by the Regulations. This is inevitable owing to the circumstances attending their inception. It is properly pointed out that the great aim of these schools is "to enable the students to obtain practical knowledge of the art of teaching, and of the ability to govern a school." We regret exceedingly to find that the most prevalent faults on the part of the Teachers-in-training, are neglect in preparing the lessons they have to teach, and sluggishness in conducting them. These are at the root of most of the bad teaching throughout the Province, and we trust that no effort will be spared on the part of both the Inspector and Principals of these schools by both precept and example to eradicate them. A difficulty has been found by the Principals in securing sufficient time to devote to the special instruction of the students. This can only be successfully overcome by leaving them free to give their attention not to a single class, but to all the classes in the school, and the technical training of these young people can then be easily sandwiched in.

We have thus put before our readers, in such detail as our space would allow, the most interesting items of the Minister's Report. They show conclusively the importance the people of Ontario attach to the education of the youth of the country. When we look back we cannot but admire the wise forethought and executive ability of him who made it possible to accomplish the results shown by this Report—the venerable Chief Superintendent who was so long at the head of the Department. When we look forward, we can as little refrain from echoing the Hon.

Mr. Crooks' patriotic wish, to which he gave expression from his seat in the House: "That no person should ever be found to mar the harmony of our Educational Institutions, by making political capital out of them." There will always be some who will grumble at their cost, and perhaps not a few who will care more to cavil at, than to aid, their administration, but the high-minded, devoted Minister, who seeks the true weal of the great trust committed to him, heedless of party advantages and party clamour, will find public sympathy always ranged on his side into whatever pitfalls political knavery may lead him to stumble.

MILTON'S PARADISE LOST, (Books I. & II.) by John Seath, B.A., Principal, Collegiate Institute, St. Catharines. Second Edition. Toronto: Copp, Clark & Co., 1879.

LONGER ENGLISH POEMS, by J. W. Hales, M.A. London: Macmillan & Co., 1878.

The two books now under review both belong to the same class of School Classics and profess to furnish the same kind of information and material for the guidance of the student of English Literature.

In both alike the grammar and the style of composition of the authors treated of are elaborately dissected, their figures of speech, their rhythm, their modes of expression discussed and analyzed, their recondite allusions explained, parallel passages collocated, and the derivation of all important words given with considerable detail.

Upon the whole we do not think that Canada need be at all ashamed of Mr. Seath's work as compared with the more ambitious, but perhaps less carefully executed, work of the English Professor. In fact, while we shall have occasion to point out many slips, and, to our mind, erroneous conclusions in Mr. Hale's book, we are constrained to say that a close perusal of the above edition of Milton has resulted in our failing to discover in it more than a few points deserving of adverse criticism.

In the first place Mr. Seath gives us in his introduction a clearly written account of Milton's life and of his great prose and poeti-

cal works, followed by an extremely useful and well selected series of extracts from the principal criticisms which have appeared from time to time from the pens of different great authors upon the subject of Milton's genius and especially as this was displayed in his great poem, the "Paradise Lost." To this succeeds some preliminary notes on the origin, scheme and scansion of the poem—the first two books of which are then given (interleaved for the greater convenience of the student.) The rest of the volume is occupied by the notes, to which we will at once turn our attention. In the first place, we hardly think there was any necessity to explain the word "that" in the line, "of *that* forbidden tree whose mortal fruit, &c." as meaning "the well known." Such a construction appears unnecessary, since Milton goes on to describe the tree fully as "that whose mortal fruit brought Death into the world." The fact appears to be that no other sense was intended to be conveyed than would have passed by the words "*the* forbidden tree," and that the word "that" was preferred on account of its fuller sound and the greater power which it has in linking the parts of the line, both in sense and scansion, into one harmonious whole.

Perhaps the greatest and most besetting fault that commentators have to avoid is the tendency that undoubtedly exists to explain and elucidate what is already sufficiently clear. We can best illustrate our meaning by remarking how unnecessary it was to comment upon line 224 by the statement that the "vale" where Satan had lain prostrate on the Lake of Fire, "is not supposed to have become a permanent depression." Surely Mr. Seath can hardly ever have come across a boy so perversely ingenious as to imagine such a thing for a moment!

We must also differ from Mr. Seath in the question of the preference that should be given between the two constructions of the celebrated line in which the East is described as showering "on its Kings barbaric pearl and gold." After giving all due weight to the arguments he adduces, we must say that to our mind the epithet "barbaric" applies to the Kings, and not to the "pearl and gold."

In the first place, although gold jewellery might well have been called by the Greeks "barbaric," inasmuch as it would show its strange origin by the style of the workmanship bestowed upon it, yet there is no authority as far as we are aware for gold, *as gold*, being called "barbaric," and in the nature of things it would not be so called, inasmuch as all the gold used in Greece was imported, so that if any of it was called barbaric, so must it all have been. As to the argument based upon the position of the Cæsural pause, we can only remark that what Mr. Seath calls monotonous is to our ears an appropriate and harmonious repetition of a stately cadence, fitting well with the regal and stately object that is being described. We might mention one or two more similar instances (as at line 636 B. II., where *close-sailing* should be read "close-hauled," or "close to the wind," not "sailing close together,") but it is unnecessary for us to do so. It would be difficult to convey higher praise to Mr. Seath than that which is implied in the fact that a search sufficiently careful to detect such trivial and doubtful shortcomings as these, has not resulted in the detecting of a single error of importance.

We cannot say as much for Mr. Hales' work. It contains several inaccuracies that might have been easily avoided. While going out of his way to point out that Dr. Johnson was in error as to the date of Gray's birth, he himself mis-states the date of Gray's death, which took place on the 30th, not the 20th of July, 1771.* Both the date of Goldsmith's birth and the date of his death are given incorrectly. The first should be the 10th, not the 29th November, 1728, and the latter should be the 4th of April not the 25th of March, 1774. Our author is again in error in regard to the year of Dryden's death, which is given as 1700, instead of 1701.

The following criticisms appear to us to be the reverse of elucidations, and had better be altered in the next edition. In Spencer's "Prothalamion," the river is supposed to bid its waves not to wet the feathers of the two

white swans "least (*i.e.* lest) they might soyle their fayre plumes." Surely this is so simple that a child might read it, and what need is there to bring in a long rigmarole about "soiling their fair plumes in the *least* degree?"

Commenting on the second line of Milton's "Hymn on the Nativity," we are told that we should rather say "whereon" than "wherein." But the phrase taken in full is as follows: "This is the month and this the happy morn wherein, &c." Now, wherein is clearly applicable to the word month, whilst whereon would only be fitted for use in connection with "the morn," so that our editor had better have left this point alone. On page 244 we notice two blunders. In a well-known quotation from the "Merchant of Venice," a word is omitted utterly ruining both the sense and the harmony of the passage. Immediately below it we are told that the older English writers used the perfect infinitive to express an unaccomplished purpose. This is intended to explain the phrase, "Such strains as *would have won* the ear of Pluto." But it is not necessary to point out that the perfect infinitive alone conveys no such notion. In the above instance it is the word "would" that implies the doubt of attainment, and in the parallel passages quoted in the text the place of "would" is supplied by the verbs "purposed," "thought" and "trusted" to have done so and so. The explanation of the word "grain" on p. 246 is incomplete, as not distinguishing or indeed so much as mentioning the expression "grain of wood." In remarking on *Il Penseroso*, we are told that the "studious cloysters' pale" probably refers to St. Pauls' cloisters, although they were pulled down half a century before Milton was born, and that the "high embowered roof" of the cathedral probably refers to old St. Pauls' or Westminster Abbey.

Surely all this is very unnecessary guessing. Milton if he thought of any particular cloisters, probably thought of one of the colleges of Cambridge; and Ely or a dozen other cathedrals would have come to his recollection quite as quickly as St. Pauls'.

Before leaving Milton we must protest

* Mitford's "Life of Gray," p. 59, "Memoirs of H. Cary," vol. I., p. 223.

against the strained and unnatural meaning forced upon the opening passage in "Lycidas." We must suppose forsooth that Milton opened that impassioned dirge by obtruding himself upon the reader, and that the beautiful lines in which he bewails the "bitter constraint and sad occasion dear" that forces him to forestall the wonted time and pluck the ivy and myrtle in memory of his friends, refer to his having determined to write no more poetry for some time to come and to a breach of that determination caused by his loving regrets for Lycidas. Milton felt too deeply the inner laws of poetry, and had far too intense feelings, to commence a dirge with an apology for himself. It is of Lycidas he sings, not of Milton. Laurels and myrtles may not be funereal emblems, but what of that? they are appropriately enough gathered for the funeral of a poet. Lastly, when we consider that the poem was written in the autumn, we can see clearly that the phrase, "I come . . . to shatter your leaves before the mellowing year" has a direct and natural meaning, and that the construction which would turn the "mellowing year" into some period when, and not till when, Milton might, could, should or would, have written poetry, is unnatural and unnecessary.

In speaking of Goldsmith, the epithet "wandering Po" applies not to its floods, as Mr. Hales tells us, but to its shifting course and varying beds and channels. In commenting on St. Agnes' Eve, it is misleading to say that Madeline really wakes at line 330. She has been awake some stanzas before that, which is more than we can say for the editor. Had he said that at line 330 she first realizes that she is awake, we should have agreed with him.

We have not mentioned half the blurs we intended to point out, and we are glad to be able to finish with a word of praise for the useful index at the end, which might, however, have been made a little fuller.

THE EDUCATIONAL CIRCULAR, (No. 8.)
Fredericton, N. B., Printed for the Education Department, by Barnes & Co., 1879.

This semi-annual of the Chief Superintendent of Education of New Brunswick—

Dr. Theodore H. Rand—seems somewhat to correspond to the Report of the Minister of Education for Ontario as an official communication on the subject of Education and a statistical hand-book of the Provincial Grants. Besides the official notices of the Department, lists of the teachers, and other statistical matter, the half-yearly Examination papers are given on the various subjects of school management and work. But the main features of the Circular are those that record the proceedings at the Teachers' Institutes throughout the Province, and of the Educational Institute at its annual meeting at Fredericton last August. These are given in considerable detail; many of the papers read at the gatherings being printed *in extenso* in the Circular. Most of these are characterized by vigour of thought and elegance of diction, which, with evident enthusiasm in their composition, makes them pleasant and instructive reading. All of them display ability, and indicate a degree of interest in the work of the teacher which must have a stimulating effect upon education in the Province. It may not be amiss if we quote some of the subjects of these papers; and the Circular itself might with advantage be consulted by those wishing to prepare themselves to address Institutes in our own Province, or to communicate papers on topics kindred to teachers' work. In the Educational Institute proceedings, the papers given at length, are "How to study Literature," by Prof. Harrison, LL. D., of the Provincial University; and "A Course of Instruction," by Principal Crockett, of the Normal School. Those in the proceedings of the Teachers' Institutes, in the various Inspectoral Districts, are "The Necessity and Means of elevating the Teaching Profession," by Mr. W. G. Gaunce; "Physical Culture," by Miss Smith; "Inducements to study and the means of Culture," by Mr. P. Girdwood; "School Management," by Mr. Thos. O'Reilly; "Natural Science as a part of School Education," by Mr. G. A. Hay; and "The Teaching of Composition in our Elementary Schools," by Mr. R. S. Nicholson.

PRACTICAL HINTS ON CLASS MANAGEMENT. By James Saunders. London and Edinburgh: Thomas Laurie; Toronto: James Campbell & Son.

Text-books in pedagogics are, in general, unutterably dull, prosy, and full of platitudes. If you wade through one you probably find little to object to, except that the writer has made his book as uninteresting as a sermon and as gloomy as a funeral. Mr. Saunders deserves praise for having tried to say what he has to say in an interesting manner, and he has succeeded very fairly. Though by no means a master of style, he has what the phrenologists call the bump of human nature tolerably well developed. His native shrewdness, and a certain originality that he has, likewise, stand him in good stead. Many of the headings of his chapters are decidedly attractive, as for example, "On Roundabout Teaching," "On Dealing with Angry Mothers," On the whole the book is pithy and pointed.

The work is intended for pupil-teachers, and is remarkably practical in its character. It would suit our third-class teachers far better than Currie's Common School Education which is at present prescribed for their use, because it is shorter, more interesting, and written to warn beginners off the rocks and shoals on which they are apt to make shipwreck. The following extract will give a fair idea of the mode of treatment adopted:

"Many young teachers, especially in Sunday Schools, are satisfied with teaching a tithe or a moiety of their children. Some rest contented if, out of the whole class, one solitary boy condescends to favour them with an occasional glance and a casual answer, bestowed much as a half-penny is thrown at a beggar. Now, do not, I pray you, be humiliated in this way. Teach *all* your children; and insist on every one giving you his undivided attention. A good preacher will rivet the eyes even of the choir. Remember that the whole of your flock require supervision; and those most of all in the background or on the outskirts.

"Some teachers are adepts in the art of 'how not to do it.' Their senses are as dull as those of an inspector of nuisances, or a policeman when going past a foul slaughter house or a gambling tavern."

EXERCISES IN ARITHMETIC.—By A. MacMurchy, M.A., Canadian author of *Smith and MacMurchy's Arithmetic for Canadian Schools*. Toronto: Copp, Clark & Co.

This neat and handy volume of exercises is intended to help the student in acquiring a more thoroughly independent knowledge of Arithmetic than the mode of treating the subject necessarily adopted in a text book renders possible without largely increasing its bulk. The problems which are carefully graduated in difficulty, are divided into sets of twelve each, and cover exhaustively the ground to be traversed by both juniors and seniors. The collection will be found extremely useful not only for High School entrants and junior Public School classes, but for Honour University Examinations. While the common types are fully represented, there are a large number of examples of an unusual character—a feature which cannot fail to recommend this volume to the profession. Some of the Examination papers set by the Department are inserted, apparently in deference to the prevailing fashion, though by his moderate use of this lately invented mode of book-making, the author shows his knowledge of the true function of a teacher and the proper place of examinations in our system of education. It is peculiarly refreshing after the surfeit every one has had of disquisitions learned and otherwise on the "Unitary Method," to come across a Canadian work of the merit of the one before us, in which the author does not consider it incumbent upon him to ring the changes on this last specific for mental inaptitude. It is too generally lost sight of, we fear, that our schools are intended to afford besides mental discipline, preparation for the duties of actual life that is absolutely necessary in a country like ours. As Prof. Goldwin Smith lately remarked in a communication to the *Mail*, "our system of Public Instruction would probably be better for revision with a view of giving a more practical character to the instruction." His remarks apply with special force to the case before us. "In this new-fangled love for the people's logic, the practical value of the rule and formula is in danger of being overlooked.

Smith and MacMurchy's Text Book in Arithmetic assigns to both rule and analysis their proper places in the study of this science. The author of the Exercises with a just estimate of his reputation, has not thought it necessary, we note, to state the exact amount of originality he has infused into his collection. It will not be out of place, however, for the reviewer to mention that in this respect as well as in others, his volume will gain by comparison with similar productions.

We are not in a position to assure teachers that the use of this collection of problems will insure the passing of their pupils at the Departmental Examinations, but we can truthfully recommend it as an excellent help to acquiring a thorough knowledge of what, apart from its examinational value, is justly held to be a very important subject. We need only add, in brief, that the work is what we should have expected from a scholar and teacher of Mr. MacMurchy's well-known ability and excellence.

THE STUDENT'S ALGEBRA, by the Right Reverend John William Colenso, D.D., Lord Bishop of Natal. Toronto: James Campbell & Son, 1879.

In former editions, part I. of Colenso's Algebra embraced the elementary rules, Equations, Progressions, &c., and the Bi-

nominal Theorem. To this has been added the Multinomial Theorem, Logarithms and the Exponential Theorem, Continued Fractions, Indeterminate Coefficients, &c.

Besides this, abbreviated methods of extracting square and cube roots, and a method of evaluating vanishing fractions have been inserted; the chapters on Quadratic Equations, Indeterminate Equations, and Progressions have been considerably extended; Inequalities have been introduced; and Permutations and Combinations, the Binomial Theorem and Notation have been more fully treated.

Oxford and Cambridge University "Local Examination Papers" with solutions or answers have also been appended, the whole forming a handy little volume of 370 pages, edited with the author's sanction, by the Rev. John Hunter, M.A.

The proofs are concise and to the point, the explanations brief, clear and full, the exercises not too numerous, yet selected with due regard to range and variety. The student is thus at once led to pin his attention on the essential facts as he proceeds, and is enabled to retain the subject as a whole in his grasp when he has finished the volume.

As a text-book for candidates for first and second-class certificates and for students preparing for University Matriculation examinations we can recommend none more suitable.

EDITORIAL NOTES.

TOPICS OF THE TIME.

THE determination of at least one house in the Canadian Book Trade to make hay while the sun shines, is having a disastrous effect upon the country booksellers, who, in various sections of the Province, are crying out against the evil of over-production in native school-book literature and the uncertainty that prevails as to what are and what are not "authorized text-books." The Brockville *Monitor* of the 3rd ult., devotes

two columns of its issue to a statement of the evils which the trade of that section suffers from in consequence of the many changes that have of late taken place in the school-books authorized for use in the province, and which entail serious loss upon the booksellers, as well as upon the parents of children attending school. But the complaint of the *Monitor* is not so much against the changes and additions in the list of authorized books made by the Minister of Education, as against the alleged unscrupu-

lous action of the Toronto wholesale houses in pushing their publications into the hands of teachers and the trade as *authorized* text-books without respect to the truth of the statement, and in utter disregard of honour and fair dealing. A further charge, and one more particularly directed against a certain favoured house in the Toronto trade, is that, availing itself of special sources of information—how acquired, it is not known—it makes announcement of changes about to be made in the lists, and thereupon proceeds to cajole the profession into introducing, and the booksellers into purchasing, quantities of books which, perhaps, never become authorized, or are almost instantly superseded by some other edition having the approval of the Department. A vicious state of things in connection with these trade monopolies and rivalries is said to exist, and the publishing houses of the city, unless seriously calumniated, possess no enviable reputation. The vocabulary of phrases which the *Monitor* makes use of to characterize the acts of the trade in this matter is no mild or limited one; and a reign of corruption and imposition is said to have begun “which if not checked in time will lead to a hurricane by-and-by.” For the nonce, in perusing the article, we had almost persuaded ourselves that we had taken up an American journal, and that what was narrated of the doings of publishing houses in our midst was surely descriptive of the keen and often crafty rivalry of some enterprising firm in the trade on the other side of the lines. The control of a school journal, too, with all that is implied among our American cousins in having “an organ in the interest of the house,” figures also in the *Monitor’s* indictment of the Toronto book houses, and gives verisimilitude to the supposed sketch of American trade tactics. The “metamorphosing of teachers into agents for its circulation,” and “its ready-made medium of indirect pressure upon the profession” in pushing the wares of the house owning it, with other injury to the cause of education and of morals, are further commented upon as evils of alarming import. But besides all the trade manipulation and chicanery which the *Moni-*

tor seems to have reason for denouncing, a grave charge is made against the Minister of Education, though absolving him personally from intent to do wrong. Says the *Monitor*: “But unfortunately for the good name of the minister, and for the well-being of the public interests, he has lent himself unquestionably too much, from causes already indicated, to the views of some publishing houses in Toronto and their satellites, whose principal object is to make money, no matter how the thing is done.” This charge is unsubstantiated by any statement of facts, though if what is said by the Brockville journal about the minister being “jockeyed and ridden too much by some of the unscrupulous Toronto firms” be true, we should think it possible that, though quite guiltless himself, the sanction of the Department has been gained for acts interestedly done by others, and from no motive of the public good. If the charges of the *Monitor* in this matter have even a modicum of truth, there would seem to be further appropriateness in our comments of last month upon the necessity for rigorous impartiality in the work of the Advisory Committee upon text-books. That any favouritism should be shown by those who aid the Minister in the work of selecting and approving the text-books for use, is a reprehensible act, and any betrayal of the secrets of the Central Committee room that would give improper advantage to a house in the trade, is a gross breach of trust. But it is to be hoped that there is no reason to doubt that those composing the Advisory Committee of the Minister are gentlemen, notwithstanding the infraction of the code of propriety and official conduct which was morally brought home to some of its members last winter. In the public interest, however, the Minister would do well to take note of such causes of complaint as those the *Monitor* makes public, and, by giving a considerate ear to representations made honestly and with presumed reliability by those interested in, or affected by, the acts of his department, he will acquit himself well of the high trusts committed to him, and faithfully serve the great cause he officially represents. But the prime remedy for the evils complained of seems to be in

giving effect to the circular on school textbooks issued by the Department on the 7th September last, which will be found in our issue for January. If attention be given to that announcement, and care taken by the Public School Inspectors that its provisions are carried out, the trouble will at least be largely mitigated. Coupled with this, as the *Monitor* suggests, official lists should from time to time be issued of the books authorized for use in the schools; and it would be well to indicate in some special manner the additions and substitutions made in the interval between the issues of the lists. Neither the trade nor the local school authorities, it is proper at any rate to say, should be left to find out what are the authorized books from the publishers interested in their manufacture and sale; and it should be the duty of the Inspectors of Schools, if the operations of the trade cannot be characterized by honour as well as by enterprise, to hedge the institutions under their supervision from the imposition, in this matter, of either self-interest, or easy morals.

WITH the beginning of the year educational work starts upon a new career under the fostering care of that part of our school government devised for local administration—the Boards of School Trustees. The heat and turmoil of elections are over, and keen or sluggish as may have been the interest awakened in the contests, we trust that good men have everywhere been returned. That this has been the case, while party wire-pulling has its meshes over the office of school trustee as over everything else, is perhaps too much to expect. We are a much governed people, and the evil deity of politics has in this machinery of our school law a fine opportunity to assert itself, and to govern the boards as the boards again govern the schools. That it takes due advantage of the opportunity but too often is the fact, and that too, with the shout of party and the triumph of augmented power. But with whatever zest politics takes hold of this added sphere of influence, and to its encroachments we fear education only too feebly resigns itself, we trust that the new year brings to our

school boards that high motive in their work that will subordinate all other influences to those that are effective only to the best and lasting interests of the schools. It is no age of high emotion, nor is it marked by any great degree of earnestness or fervour, but if any interests of the community call for intensity of feeling and impulsiveness of ardour in contributing to its highest welfare, that interest is the cause of education and with it the efficiency of the schools. To take a liberal view of the educational wants of a town, and to maintain and extend the machinery of school work, is the urgent demand of the time; and no aspect of civic life is more pleasing, or fraught with greater blessing, than the resolute endeavour of a community to broaden and deepen the foundations of the educational fabric in its midst. Looking at the liberal provision made by the legislature of the country to promote education, and the elaborate and far-reaching machinery of its operation in Ontario, a stranger would say that we are in earnest in this work, and doubtless we are. But there are many impediments to our success, chiefly in our working along the dead lines of regulation method, and in the deep trenches of a routine-system, while we should rather be throwing forward our outposts and extending the column of attack along the upper plain of progress and over the mounds of circumlocation and red-tape. In some respects, government control of education is a check rather than a gain to its progress, and the machinery necessary to its working too often chokes off the impulse to active and enthusiastic local effort. We rely too much upon what the Department may do for education. In many quarters, however, individual vitality and a hearty civic spirit give impetus to the work which the paternal system is apt to dull and enfeeble. And it is here that local school boards should find their true and proper work, to reinforce the department machinery with increased vigour and effect, and to impart that vitality to its work which will carry it on to triumph and success. Realizing this function, and zealously intent on working it out, there should be a hearty and interested co-operation with the teacher, and that cor-

duality of relationship that would incite him to and encourage him in his work. He should always feel sure of his support and ever recruit his strength and his ardour in the face of men kindly appreciative of his labours, and uniformly friendly to himself. In such a spirit, and with such aims, school trustees should come to their new year's duties, and in this way they will best serve the local interests with which they are entrusted, and most satisfactorily advance the general cause of school work.

And as we write there seems to be occasion to urge Trustees to be faithful in another duty, viz.: jealously to guard the power past legislation has given them in making efficient provision for the maintenance of the schools. In the Ontario Legislature, the Minister of Education, we see, is about to introduce a measure imposing some restriction upon their rights, and empowering town and city councils to control, in some proposed degree, the levies made upon them for school purposes. We need hardly say that this is a menacing danger which Trustees should instantly seek through their representatives to avert, for no measure is more vital to the weal of education than that secured by the late Chief Superintendent, which is sought now to be modified or impaired by the Act of the Minister.

THE *Montreal Gazette* of the 7th ult. does THE MONTHLY the honour of devoting a leader, under the caption of "Comparisons," to the subject of an editorial note in our last issue—The state of English Primary Education in the Province of Quebec. While emphatically endorsing our remarks, and urging upon the Protestant School Commissioners the necessity of giving the matter attention, our contemporary, however, takes exception to a circumstance we incidentally referred to—the sharp contrast between the zeal and enterprise which, in so marked a degree, characterized the efforts of the Ontario Education Department in representing at the Paris Exposition the machinery and exhibits of its work, and the poverty of the

exhibit and lesser interest evinced, in the display of the Quebec Bureau. The *Gazette*, in support of its position, points to the equally distinguished honours accorded to the Educational Commissioners of Quebec as were accorded to those of the Ontario Department. It also refers to the recognition of the literary and official industry of the former Chief Superintendent of the Province which secured for that gentleman the insertion of his review of "Canada's Educational System," in Dr. Schmid's Great German Encyclopædia.

Our answer to our contemporary is a very brief one,—that we are very far from desiring to rob either Quebec, or Quebec Educationists, of the honours due to them. Our reference to the subject taken exception to was, as we have said, a very incidental one; and, as a fact, was but a re-echo of what French Educationists themselves had remarked upon, viz.: the recognition and success of the Ontario educational exhibit, and the reverse of this, in the case of the representation of Quebec. In this, however, the Quebec Province is not culpable, and we by no means meant to say so. It would have been a churlish and ungenerous thing had it been our intention to lay any stress upon the contrast. That was not a matter that concerned us. The Province in whatever representation it did make, is entitled to its meed of praise. Unfortunately for Quebec, that of Ontario was of such proportions as almost to eclipse it, and this fact, we fear, must go unchallenged, notwithstanding our contemporary's patriotic desire to spice the truth a little with fiction.

EDUCATIONAL MATTERS ABROAD.

ACCORDING to *Nature*, a very strong memorial against the retention of Greek as a subject for all honour candidates has been presented to Cambridge University. Whether this is the beginning of a really influential movement against the preponderance of classical studies in our systems of Education or not, we scarcely know; but if only another random shot into the camp of the classicists, and even without much seeming

effect, we are glad that it has been fired. Time, and the powerful auxiliary of science and those other practical studies that seek to win place by the side of the classics, will ultimately tell in diminishing its hitherto imperious claims. We are no indiscriminate enemy of classical culture, but surely the day has come when the educational value of a classical course should be appraised with some regard to studies that as imperatively call for recognition. That the classics have hitherto usurped a place in the curricula of our schools far beyond, we will not say their traditional importance, but that of their practical value, and even as a discipline for the mind, few will now deny. This has long been conceded by the best classical men in England, and it has also been admitted that to the monopoly of this study much of the humiliating ignorance of other important subjects which should have engaged the attention of youth is owing. Here in Canada, at any rate, and in a utilitarian age like the present, sound sense in this matter should prevail, and classical studies, especially for honours, be regulated by some sense of their practical benefit in the after life of the student. Utility, and not the aim of the pedant, should be the object sought after, though in urging this we have full regard to the desirability of retaining a classical and purely literary training in our systems of education, but in some just relation to the other acquirements and studies necessary to make up the well-informed man.

FROM "Whitaker's Almanac" for 1879, a publication that each year increases our admiration of the talent and industry manifested in its compilation, we extract some items of interest concerning the London School Board and the statistics of its work. The Board is composed of fifty elective members (representing the ten districts into which the city is divided), drawn from the ranks of the professional and wealthy-leisured class of the metropolis—some of whom are ladies. Its officers, who take the management of the various bureaux of finance, statistics, school management, industrial schools, school building, etc., are ten in number, and their sa-

laries range from \$1,500 to \$5,000. There are five Inspectors who receive salaries varying from \$1,500 to \$2,250; besides Chief Instructors in singing, drill, and needle-work; an Instructor for the deaf and dumb, and a Kindergarten Instructress. The year's expenditure of the Board, ending March 1878, exceeded five millions dollars, of which sum one and a half million was paid as salary to Teachers; a like sum for the erection of, and addition to, schools; and \$700,000 for the purchase of building sites. From the Almanac we transcribe the following further facts:—

From the establishment of the Board in November, 1870, up to October 29th, 1878, accommodation in permanent schools had been provided for 163,935 children. In addition to this, schools with accommodation for 91,691 are in process of erection, or will be provided in the course of the next two years. At Lady Day last [the Half-Yearly Report for Michaelmas is not yet published] there were upon the rolls of the Board Schools (including certain schools transferred, and temporary schools), 188,092 children. The staff of teachers comprised 2,378 adult teachers, and 1,751 pupil teachers and candidates. The fees charged by the Board range from 1d. to 9d.; the number of school places provided at 1d. being, according to a recent return, 45,933; 91,191 at 2d.; 36,335 at 3d.; 8,225 at 4d.; 2,859 at 6d., and only 87 at 9d. The charges are determined solely by what is believed to be the ability of the parents, and to avoid needless class distinctions they are made uniform in each school. When the census of all the schools in London was taken in 1871, whether efficient or non-efficient, the total number of children on the roll was 320,143. The number of children now upon the roll of efficient schools alone is 447,382; in other words, the roll of efficient schools alone is greater by 127,239 than the total roll of all schools whatever in the beginning of 1871. The number of children sent to industrial schools at the instance of the Board, up to Michaelmas, 1878, was 4,364. In addition, 4,118 other cases had been inquired into by the Industrial Schools Committee, and referred to various voluntary agencies, etc., to be dealt with. The receipts for the year 1878-79 amount to £506,306, which is at the rate of 5'15d. in the pound.

DR. LYON PLAYFAIR, who showed a great interest in educational matters during his visit to this country last year, intends to in-

introduce a bill on Scholastic Registration into the Imperial Parliament at the coming session. He proposes by it to create a Public Register of teachers, and to forbid, under a penalty, any unregistered person to engage in the work of teaching. The persons to be placed upon the register are (1) Graduates of the English Universities; (2) Members of the College of Preceptors (a body that furnishes a considerable number of teachers to the private schools of the country); (3) Teachers holding the certificate of the Education Department; and (4) *Bona fide* teachers in intermediate schools at the time of the passing of the Act. The machinery by which the Act is to be put in operation is an Educational Council, consisting of representatives of the Universities of Oxford, Cambridge, and London; of the College of Preceptors, and nominees of the Crown, to be eventually replaced by representatives chosen by the registered teachers.

BRIEFS ON NEW BOOKS.

A VERY useful little volume comes to us from the publishing house of Messrs. Davis, Bardeen & Co., of Syracuse, N. Y., entitled *The School Room Guide*. The work is compiled by Mr. E. V. DeGraff, M.A., and embodies the instruction given by the author at Teachers' Institutes in New York and other states, and is especially intended to assist public school teachers in the practical work of the school room. The author seems to be very familiar with the various methods employed by teachers in school management and work, and the profession will doubtless find much that is suggestive in the book. From the same publishers we have a neat booklet, forming No. 1 of their "School Room Classics," the subject of which is "Unconscious Tuition," from the eloquent pen of the Right Rev. Dr. Huntingdon, Bishop of Central New York.

The Right use of Books: a lecture by Prof. W. P. Atkinson. *Reading as a Fine Art*: translated from the French of M. Ernest Legouve. Boston: Roberts Brothers. These little volumes preserve in dainty form treasures of thought on the subjects of which

they treat. In these days of intellectual dissipation in the reading habits of the people, no greater service can be done the community than in directing and guiding thought in regard to sound methods of study and the selection of good reading matter. Books are too often taken up *pour passer le temps*, without reference either to what may be gained from them, or to their influence on the mind and character of the reader. Prof. Atkinson's thoughtful words will be a revelation to those who make such acquaintance with literature. The important subject Mr. Legouve treats of should insure perusal for his brief sketch. Good reading is not usually a strong point in our schools. It may be said of our youth what M. Legouve said of the pupils in the primary schools of Paris, that "they read as if their vocal chords had no strength, and their sentences neither periods nor commas."

Adams' Synchronological Chart of History. Toronto: Herger & Co. This unique and pictorial compendium of history should find a place in all our schools where the value of imparting information through the eye is recognized, and the benefit of possessing a pictured representation of historical events, intelligently and accurately displayed, is acknowledged. There have been many devices hitherto published, in the form of chronological charts, trees of history, etc., which have attempted at a single view to represent the stream of time, with its varying scenes of incident and change. We have seen nothing, however, so complete, and we should say, satisfactory, as this mammoth panoramic chart of the Hon. S. C. Adams. It would take a whole number of this Magazine to enumerate its features and describe its attractions. We will simply say of it, however, that it should be seen by our educators, and its method tested, and we make bold to say that it will be found a substantial aid to the teaching of history, and an entertaining and attractive object of interest in the school room. The size of the chart is 22 feet by 30 inches, and can be had either in portfolio for the library or in a frame with rollers for the wall. The prices range from \$13 to \$25 with a special discount to schools.

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

MARCH, 1879.

THE BIBLE IN OUR SCHOOLS.

BY THE REV. JOHN LAING, M.A., DUNDAS.

BY Bible we understand that volume of ancient writings which is acknowledged by Christians to be the Revealed Will of God, and authoritative in matters of faith and conduct. By Schools we understand the institutions of learning which have been established by law, are maintained by taxation or from national funds, and are intended for citizens of every class and creed, and of no creed. The question is: should this Bible be used in these schools as an element in forming the character of our children? The answer we give and propose to vindicate, as far as our limited space will permit, is in the affirmative. The Bible should have a place in our schools, and that no second place.

It has been said that "the consensus of enlightened opinion is against us." Culture, in the modern sense of the word, may be opposed to the Bible, as "the wisdom of this world" has always been, and may

seek to be divorced from that religion which has fostered it hitherto and even now is its best friend, though hated; nevertheless we call this *soz-disant* enlightened opinion to the bar of common sense and Christian sentiment, under the conviction that that enlightenment is spurious which decries light which comes from God and alone relieves the darkness that hangs over man's origin, nature, spiritual interests and destiny, and which proposes in training our youth to use only the rush-lights of reason and nature.

Two objections chiefly are brought against the use of the Bible in our schools. The first is theoretic, the second practical. The former may thus be stated: Secular education of the masses is a state necessity, especially in a country ruled by the popular will. The state should therefore educate the youth, and for this end should establish and support schools. The state has no concern with religion,

and should have no doctrine of God to promulgate nor form of worship to be observed. Hence state schools should use no book of religion, but should confine the instructions given to subjects concerning which citizens of all religions, or of no religion, are agreed. This bold statement contains the gist of the theoretic objection. Ultimately it will be found to rest on assumptions, viz. : that (1) Because education is a national good, therefore the nation should educate ; and that in such manner as the state sees fit. (2) The "will of the nation (*i. e.* of the majority) is law for each individual citizen, and no Higher Law can be admitted. (3) The child is to be dealt with by the state directly, and not through the parent. (4) Education may be religious or otherwise as the state determines. (5) Science and philosophy may be taught, although faith in Revelation is thereby imperilled ; but Revealed Truth should not be taught. In antagonism to the above we contend that (1) Education of body, intellect and spirit, is the right of every child. (2) To provide this education is primarily the duty of the parent, just as to feed and clothe the child are. (3) The state should take care that this is done by the parent, so far as it is a state necessity. (4) When the parent neglects or cannot perform this duty the state should do it for him, or aid him in doing it, just as it cares for feeding and clothing orphans and waifs. (5) The Higher Law of God is binding on the parent in the education of his child ; and the state has no right to interfere or to deprive the parent or child of their God-given privilege. (6) The child ought to be dealt with by the state only in and through the parent.

Between these *theories* there is a fundamental and irreconcilable antagonism. And unless common ground be found in *practice*, the Christian community must withdraw, as they

cannot support schools based on purely naturalistic and agnostic principles. Such ground has been found in time past, and unless it is abandoned the nation as a whole can still support schools on a basis more satisfactory than is the theory we oppose.

It may further here be in place to protest strenuously against the *dictum* "The state, as such, has no religion and should know no religion." That dictum is not more opposed to Christian sentiment than contradictory to historical facts. In the long past what nation had not its gods, its priests, and its religion ? In the present day where is there a nation without its God and its religion ? A particular *cultus* is as much an essential characteristic of a nation as ethnic descent or language. Even in the United States of America, whatever may be the theory of the constitutions of the several states and of the Federal Union, we find practically a Christian Protestant nation. So far these states have resisted all the demands of Popery on the one hand and of Infidelity on the other, which are inconsistent with the revealed law of God. And beyond all question, in Great Britain and its Colonies, the Bible is recognised as possessed of authority, churches are more or less fully acknowledged and privileged, and in state schools the Roman Catholic religion as well as Protestant books are taught. This theory then fails in its application among us in Canada, as it is opposed to Christian feeling and historic fact.

The second objection, as has been said, is practical, viz. : The jealousies and rivalries among Protestant denominations render any religious instruction in schools impracticable. Were this true, we would only say the more the shame and pity, and a remedy must be found by individual denominations in the establishment of denominational schools. This would

be a less evil than to give our children a purely secular education. But the objection is opposed to facts, for (1) In many places in the past, the Bible has been taught, and in many public schools it is now taught, with the cordial approval of, and perfect harmony among, all the Protestant churches. (2) In our private schools and denominational colleges no objection is made to the religious instruction given, and still they are attended by pupils of all denominations. (3) So far are many Protestants from any deep feeling on this subject, that they even send their daughters to Convent Schools, while they dissent entirely from the religious instruction and observances of these institutions. (4) In the national schools of London, England, where the Bible is read and prizes are given for excellence in Scripture knowledge "with respect to 150,000 children, being the total number in the schools, only *fifty* parents withdrew their children from religious instruction (*i. e.* one in three thousand); *nor was a single complaint made of improper interference* during the seven years in which the regulation has been in force." These facts furnish a complete answer to the objection, showing, as they do, that the Bible can be used in schools without infringing on individual rights of conscience or disturbing the harmony which should exist among neighbours, who though belonging to different Protestant churches, hold in common the prime authority of the Word of God.

The space allotted us will allow of little more than the statement of some reasons why the Bible should have a place among our school books. Our readers must for themselves consider the full bearing and wide reach of what may be suggested.

1. We claim in the schools of Ontario a place for the Bible by *prescriptive right*. Our province has drawn

her colonists from many countries. In the fatherland of all these colonists the Bible was a school book. In England, Scotland, Ireland, Germany, Holland, Sweden, this was the case. In all reformed countries the zeal for education was the result of a deep conviction that nothing but acquaintance with Scripture truth would be a safe-guard against the assaults of Popery, or secure for the nations the religious liberty they had come to enjoy. Hence the determination to have a church in every parish and a school beside every church, where the young might learn to read the Bible and be instructed in Christian doctrine. In these schools the Bible and catechism were the books first and chiefly used. Modern scientific education had not been dreamed of, and literary attainments were a secondary object, aimed at by a very few.

When these colonists reached this western land, they founded schools, which did good service before the present more efficient system had been devised on the Alpine heights. A principal part of the work of these schools was Biblical and religious instruction. When these primitive schools had become merged in the Common Schools, the Bible was still taught. After a time in the hope that our Roman Catholic fellow-citizens would unite with Protestants in support of a national system, the Bible was to a great extent dropped to avoid giving them offence. The hope was vain. Our Common Schools, bereft of their religious teaching, were denounced as godless, and the state was forced to establish and maintain Separate Schools in which the religion of the Romish Church is taught. Why then shall not the Bible be restored to the place it ere-while held? Why should Protestants be denied the privilege which Roman Catholics enjoy? We only plead for a restoration of a precious privilege which for

a time has been by mistake suspended; we ask for no innovation, but for a return to the original and better state of things.

2. The vast majority of our citizens wish the Bible to be taught in our schools. The Bible has not been *legislated* out of our schools; no government is strong enough to propose such a measure. It has only been *quietly* excluded, and then, by "the consensus of enlightened opinion" which regulates these matters, it is allowed to remain out and is relegated to the church and Sabbath school. Every denomination of Christians would rejoice to see the Bible restored to its proper place in our schools. A few individuals object on the grounds already considered; and there is a handful of avowed infidels who have had the audacity, in their publications, "to protest against the permission of the use of the Bible in the public schools, on the ground of its being a non-sectarian book, as a manifest evasion of the truth, and a wilful disregard of the equal religious rights of the people," and to demand "that all religious exercises should be prohibited in the public schools." How small the number of such must be, will appear from last census. According to it we find, that after excluding Roman Catholics, and those returned as "religion not given," the entire number of Jews, Pagans, Mahomedans, Atheists, Deists, and those of "no religion" in Ontario, is not 8000. That is to say, for one citizen who may be supposed to object as above, one hundred and sixty desire the use of the Bible. Ought so small a minority to dictate to the vast majority of our citizens? Or should these be deprived of what they deem an inestimable privilege, because one in a hundred and sixty does not regard it as such? It is intolerably unjust; and the more so, that by virtue of a conscience clause in the law, no child

is required to hear the Bible read, or to be present at a religious service, against the wish of his parent or guardian.

It may further be well to learn from themselves the aim of those opposers of Bible truth. Here are their words: "The members of this Association reverse the orthodox obligation which insists on trying and praying for power to believe. We pledge ourselves to discourage belief, and encourage doubt, as necessary in the investigation of truth." This is plain speaking, and we ask: are Protestant Christians prepared, at the demand of such men, practically to renounce the revealed will of God, or by their acquiescence in its exclusion from our schools, to have their children trained up in the belief that God's word is of doubtful obligation? But one answer can be heard from every Christian home: "God forbid." Up then and act.

3. The Bible lies at the foundation of the British constitution and law; and is the bulwark of liberty and only safe-guard against anarchy. We need not tarry to dilate on this point. Our beloved Queen and her advisers, by many a worthy word and deed, have illustrated it. The coronation oath, the oath of allegiance, the laws regarding an established church, the Sabbath, marriage, evidence in courts, as well as those against Atheism, licentiousness, perjury, &c., all more or less directly rest on the authority of the higher law of God. In our own Ontario, a decision given last year in the Court of Appeal by Chief Justice Moss, which affirmed the right of the municipal authorities of Napanee to refuse the use of public property—the Town Hall—for the purpose of proclaiming Atheistical and Infidel sentiments, was based on the fact that our law assumes the truth of Christianity. Surely then our children should be taught that book

which so powerfully influences the conduct of state affairs.

But the Bible alone teaches the principles of true liberty and obedience. The man who fears God will vindicate his own rights and respect those of others. Tyrants in church and state fear and hate the Bible. They cannot enslave and trample on those whom God's truth has made free. On the other hand, the law of God, as it forbids impiety and profanity, protects life, purity, family relations, property, and good name. Nay, it enjoins love to our neighbour as well as to God, and thus cements society; further it teaches "Fear God and honour the King," requiring submission to the powers that be; so that a Christian cannot be a rebel against an efficient government duly constituted. And in view of assaults made from time to time by both civil and ecclesiastical despotisms, upon the liberties of man, and of the muttered growlings of anarchy in Communism, Internationalism, and Nihilism, it is of the last importance that our children read for themselves the word of God, which alone affords those principles that will conserve liberty and maintain order and peace among the nations. Surely it is nothing short of madness to deprive them of the only God-given remedy for the dangers which threaten to disturb and subvert society.

4. The Bible is the most potent instrument in education that we possess. If the end of education is to produce a body trained for useful labour, an intellect capable of clear and far-reaching thought, a will vigorous and controlling instinct and passion, a taste which can appreciate the beautiful, and a spirit holy, virtuous, and able to commune with the great God, then give us the Bible as the educator; there is nothing like that. The morality which it inculcates favours health and vigour; its doctrines

lead to the noblest, highest and grandest conceptions, "the thoughts of God;" it affords light on questions on which science and history are silent; it appeals to the most powerful and enduring motives, and awakens a noble enthusiasm that is now achieving unparalleled triumphs for man; it affords the choicest themes for works of art, and has enriched the geniuses of poetry, painting, and music; it alone brings God into fellowship with man. Of a truth it is the book of books.

Further, the subject matter of the Bible is the *Scientia Scientiarum*. Its grand subject is the spiritual nature and interests of man. The noblest and best of men might be quoted in this regard to show how they esteemed the knowledge obtained from Scripture above all other. And we can easily understand that as chemistry with its affinities is higher than mechanics which deals with masses and mere force; as biology with life force rises above both mechanics and chemistry, and controls them; so the science of humanity, in the individual and in society, with free-will reason, and acquired qualities, rises above all other knowledge. While, then, we may gather from nature and observation much regarding the material part of man; "the mysterious companion" that is wedded to his material organism must remain unknown, not understood, an unsolved mystery without a revelation from the Creator. To the Bible, then, we turn for this highest knowledge, and finding it there we have rest. Shall we then deprive our children of the book that alone gives us this knowledge, and leads our thoughts beyond this present unsatisfying world? Assuredly, if there be a God, if that God has revealed himself, if we are accountable to Him, if man is heir to another state of being, and death is not his end, if eternal

happiness depends on knowing and doing that will of God—if these things are true—then must that knowledge be of the best importance. This we, the people of Ontario as a whole believe, and therefore we demand that our children be taught this Book of God.

But the importance of the Bible may be conceded, and yet we may be told that what we urge is aside from the question; and that although not read in the day-school, the Bible should be, and is, taught in the family and Sabbath school; and that the church and the parent, not the state, should have to do with religion. Our reply must be brief. (1). *Parents* should educate their children, not the state nor the church, and *they* should see that the education given by the teachers they employ is a Christian education. Now our system recognises a certain amount of Scripture teaching and of religious worship in our schools, and we only ask that the amount be proportionate to the supreme importance of Divine truth, and that the liberty which we enjoy, (See Memorandum by Minister of Education, May, 1878,) be used by our citizens generally. As to what Sabbath schools can do, we shall just quote from the Canada Educational Directory of 1876. "If the Christian community believes that the rising generation will receive a thorough grounding in the truths of

their religion, and a due impression of their importance, by what they learn one hour a week in the Sunday school, they are in danger of being much mistaken. Much of the Sunday school teaching, as well as that of the parent, is vague, indefinite, and inefficient. Sunday schools may be better than they were, but an hour a week can scarcely be considered enough, even if the teaching were much better than it is. There is enough happening around us to make it the duty of those who believe in the restraining influences of religion to examine whether all that is possible is being done to strengthen and promote that influence on the rising youth of both town and country." These are mighty words, and every one who has to do with our advanced scholars will appreciate the expression of the head master of one of our Collegiate Institutes who was astounded at the ignorance of Scripture history shown by those who were studying Milton, preparatory to the highest examinations in the school.

Space compels us to close abruptly and to leave much unsaid, and we conclude with the words of the Honourable the Minister of Education. The Bible, if properly used, "will improve the character of our youth, and form a community distinguished not only for its intelligence, but for its fair dealing and law abiding and moral qualities."

OXFORD "GREATS."

BY BROTHER IGNOTUS.

THERE is a well-known definition of an educated man as a man who knows everything of something and something of everything. The system adopted at Oxford in the final classical schools, or "Greats," in University slang, cannot indeed pretend, in the short time allowed, to teach a man everything of something. It does, however, aim at imparting to the student some conception of the connection subsisting between the various branches of knowledge, and so teaching him something, which he did not know before, of everything. The final classical school is also the philosophical school. It retains the name of classical, because the study of certain Greek philosophers and Greek and Roman historians is insisted upon. The student, however, soon finds that all-essential as an acquaintance with Plato and Aristotle are, he is also expected to be, to some degree, familiar with the writings of Bacon, Hobbes, Herbert Spencer, Mill, Henry Maine, Kant, Hegel and other modern thinkers. The aim of the course is not to store the student with facts, far less to impart to him technical knowledge of any kind. It is rather to give him an idea of what philosophy really means : to teach him that to catch a glimpse of truth he must dive lower than mere external facts and phenomena, and strive after a knowledge of those hidden laws which underlie the facts, and of which the facts are but passing manifestations. The facts are transient, the laws are eternal. At length the

student arrives at a new conception of what education means. He used, in all probability, to suppose that education meant merely knowledge of facts and knowledge of languages, he comes at last to see that such knowledge by itself is but superficial at the best. Underneath the facts of nature he is taught to see the laws of science, under the laws of science he is shown yet a deeper deep, and brought face to face with the problems of metaphysics. In all likelihood by the time he has completed his "Greats," course his ideas are revolutionized. When he began he was too apt to take things for granted, and to regard many things as obvious which he now perceives are but the thin coverings overlying fathomless mysteries. Words, again, which before he flattered himself he clearly understood, such as Law, Justice, Beauty, he now finds defy his efforts at definition. He has been using such words all his life, yet when he looks into the matter he cannot for the life of him discover what he really means by them. History used to be to him merely the annals of men and things, now he regards it rather as the record of the progress and development of society in accordance with laws as powerful, though less clearly understood, than the laws of natural science. The printing press, the history of literature, the march of freedom, the growth of commerce, the development of democracy, are more interesting and important to him than great battles and sieges.

The latter seem now, for the most part, mere breaks and stumbling blocks in the progress of humanity, or the agonies preceding a new birth. He has begun at length to see there may be more significance in scarcely perceptible changes in constitutional ideas than in the campaigns of a Wellington. Again, he no longer regards the view that certain acts are wrong because they are forbidden in the Bible, and forbidden in the Bible because they are wrong, as a satisfactory solution of the problems of morality. Retaining, let us hope, his faith that the Bible is a book of Divine reason, he now clearly perceives that any rational scheme must have a rational basis. He seeks for a moral standard. He allows now, as ever, that it is his duty to do good to others, to abstain from stealing, lying, cruelty, but this no longer contents him. The Word of God forbids such acts, but he longs to justify the Word of God to men, and to discover the Divine principle from which this code of morals may be deduced. He no longer deems a blind faith a fitting sacrifice to a God of Reason. Before he began his course the growth of the human mind probably conveyed little meaning to him. Now he has discovered that ideas familiar enough in these days, were unknown, or almost unknown, a few hundred years ago. In Politics he discovers that the ideas of Representation, of the dignity and responsibility of individual man, and of progress, familiar to all as they now are, were well-nigh undreamt of by the Greeks and Romans of old. In Ethics he seeks in vain in antiquity for the virtues of benevolence, and humility. In Jurisprudence he finds that the distinction between law and morality, and the proper function of Municipal legislation, obvious as he may think them, were never clearly grasped by the greatest thinkers of ancient times.

Everywhere he sees a possibility of a philosophy, and far, far away he fancies he catches a glimpse of that primal philosophy, that philosophy of the ultimate laws of the universe, from which the subordinate laws pervading the various branches of human life and human knowledge shall be deduced. In a word he has been taught to *think*.

What, then, is the result of all this? Many would reply, and reply in a certain narrow sense truly, "an intellectual prig." That prigs must be found at a University where such a course of study is encouraged—and found, too, among men of real earnestness, and some power of thought—must undoubtedly be the case. You take a number of young and enthusiastic minds, and you introduce them in rapid succession to regions of thought and speculation undreamt of before. They feel their minds at once, as it were, lifted to a higher level, and in the first blaze of light they fail to see how many others have reached as high and higher than themselves. "Define me a prig," says the Vicar, in the "Monks of Thelema." "Let us define a prig," replies Lord Alwyne, "as a man who overdoes everything. He becomes a prig because he is not equal to his assumed position. . . . And the universal maxim among prigs is that no one has a right to be heard outside their own body." The young Oxonian is suddenly lifted to a position to which he is not equal, and it is too much for him for a time. But all this must soon wear off, and then the good remains in those who have ever really received it. For philosophy is the highest truth in the first place; and whether a sound philosophy of a subject be or be not attainable, it is quite certain that we cannot have any real knowledge of the true meaning of facts, except so far as we understand the laws and principles which explain those facts. The excellence

of the Oxford course, however, is not usually represented as consisting so much in the knowledge it imparts, as in the method it inculcates. It aims at habituating the mind to painstaking, logical thought. It first humbles the mind by showing it its weakness and credulity, and then points out the right road to strength and certainty.

But it is sometimes objected that such studies are well enough for rich men, but that they tend to unfit a man to face successfully the dull routine of business. Yet surely this is not so. It is true no doubt that at first a man coming from the luxury of Oxford—a luxury the more seductive because it is both material and intellectual—is apt to turn in disgust from the monotonous toil of a profession. But unless he be of a temperament so self-indulgent that no training of any sort would have corrected it, this feeling cannot last. The bad wears away, the good remains. He finds the studies he has been permitted for a short time to follow unremittingly have thrown a new glory over his daily work, and inspired it with an ever-growing interest. His profession is not to him a mere daily task, but he welcomes the necessity it entails of mastering a mass of uninviting facts, because they assist him in arriving, step by step, nearer to the philosophy underlying them. The fluctuations of commerce he now sees are but the outward manifestations of the secretly working laws of political economy. The more he learns of practical law, the more clearly he sees his way to a sound conception of jurisprudence, and he feels that he is gaining access to the only possible means of estimating the truth of the theories of the great speculators in that department of knowledge. If he is engaged in political life, he is not so likely now to be animated by a mere vulgar desire for self-aggrandisement; rather he will be elevated by the feeling that he too

is taking an active, even though a humble part, in the working out of those laws, by obedience to which the progress of humanity can alone be secured. If he is a doctor, he is little likely after such a training, to content himself with being a mere empiric; he will rather feel that in the truest sense he is the interpreter of the decrees of God to men. Surely such aspirations as these are not only justified by truth, but are well calculated to throw a glorious halo over human life, to inspire professional men with zeal, and to secure to the community at large, intelligent ministers to its various needs.

Furthermore, by teaching a man how great are the mysteries of the universe, by habituating him to the endeavour to grasp the greatest conceptions the mind is capable of, you raise his whole existence. You elevate his conception of the greatness and glory of the God who made this wonderful universe, and who gifted him with a portion of his own divine reason. You make his whole life more earnest, and inspire him with a desire to strive for the highest objects. Mere mean and sensual pleasures lose half their charm for him. In the midst of the immensities and eternal verities he dare not trifle. Moreover, by enlarging his vision you teach him to think less of his own petty troubles. True, it may be, as Shakespeare says,

"There never yet was born philosopher
That could endure the tooth-ache patiently."

This, after all, is a physical pain, pure and simple, and the acuter a man's intellectual perceptions become, the acuter, perhaps, will be his other perceptions. The larger part of human life, however, is not physical, and in the conception of the vastness of the universe, and of the all-pervading laws, many a man will find assistance in meeting, more courageously, such reverses as may be in store for him.

SPELLING REFORM.

[NOTE.—It is with some misgiving that we reprint the following paper on a subject which many of our readers will consider should be held sacred from the touch of the orthographic barbarians who are now bent upon desecrating the English language and literature by their modern innovations and schemes of reform. Despite our own conservatism of feeling in the matter, however, we venture to give the paper publicity, as the agitation on the subject seems to be on the increase, and as we purpose in a subsequent number to give insertion to one or more papers in favour of the old, familiar, and undisguised spellings, even with all their anomalies and puzzling inconsistencies. The paper is the substance of a report of the Text-Book Commission of the State of Wisconsin, recently submitted to the Legislature of that State, and was prepared as an argument in promoting facility of education and economy in public expenditure for printing and writing.—EDITOR C.E.M.]

OBVIOUSLY, the most complete and practicable system of orthography is that in which every sign, or symbol, is the definite representative of a spoken sound, and in which every spoken sound is represented by a definite sign, or symbol—in other words, “a sign for every sound, and a sound for every sign.” In such a system, the child who has once learned the alphabet, or written signs of spoken sounds, should be the master of the orthography of the language, and be able to read and write his mother tongue without tedious effort or prolonged instruction.

The orthographies of the written languages of Europe, including that of our own language, assume to be based upon this fundamental principle; and many of the modern languages conform to it so nearly that public instruction in orthography and reading is a matter of comparatively trifling cost, either in time to the pupil, or in money to the public. A comparison of the progress made in orthography for a given period of time in some of the public schools of Europe, with the progress attained in our own schools, in the same branch of study and for a similar period of time, would sufficiently illustrate and confirm the

fact stated. It is claimed, and we think with entire truth, that a pupil in the public schools of Germany advances farther in one year in learning to read and spell, than a pupil in the United States in three years. It is also shown, from the reports of inspectors of schools in Great Britain, that the bulk of the children educated in elementary schools by government aid there, leave school without being able to spell accurately, or read with intelligence—a fact unknown in any civilized nation where the English language is not spoken, and a result which ought not to surprise us when we reflect, that there are probably not sixty words in our language in which the alphabetical names of the letters employed are any certain guide in pronunciation.

In comparison with the orthography of most of the modern languages, that of our own language is discreditably discordant, disorganized, and deficient. In the ideographic languages characteristic of peoples of less advanced civilization, the pupil is at least permitted the aid of a certain degree of correspondence between the thought expressed and its written symbol. To this extent he has the advantage of the pupil in our own

schools, who is left no alternative but to memorize the awkward and manifold devices and combinations by which the sounds of our spoken language are committed to paper. Nor is the task imposed upon the English pupil ever completed. Years of study in school, supplemented by years of patient care and attention in business or professional life, rarely ensures perfect results in this practically important department of personal education. The aggregate loss from this cause, in the results of human effort and enterprise, cannot be over-estimated or sufficiently deplored.

The difficulties which invest this question, relate almost exclusively to the vowels of the alphabet, and to the use of silent and supernumerary letters. In our written words, the vowel *a* has at least six sounds, *e* three, *i* two, *o* four, and *u* four—making nineteen distinct sounds for six letters. If we add the number of sounds expressed by combinations of vowels, we shall find that we have not less than twenty-four sounds in all, for which our alphabet provides but six signs.

In a paper once presented to the British parliament by Edmund Burke, it was claimed that not less than nine different meanings, or sounds, could be found in English words for the one letter *a*, while the abuses of the five remaining vowels were declared to be equally various and unnatural.

Sounds not represented by any letter of the alphabet are expressed by as many different methods as the ingenuity of man can invent, and by combinations which no rule will explain, and which no degree of patience and perseverance in study can thoroughly and satisfactorily interpret.

In his dictionary, Noah Webster attempted to indicate the pronunciation of English words by a system of diacritical marks applied to vowels, thereby virtually multiplying the

number of vowels belonging to the alphabet, and to that extent recognizing the principle sought to be practicalized by the advocates of orthographical reform.

In some or all of the readers adopted for use in our public schools, a similar expedient is resorted to, by way of relieving pupils from some part of the burden of learning to read and spell by means of signs otherwise almost wholly illogical and arbitrary. In a limited way, these devices seem to modify, but not to remove the obscurity and confusion. The first lesson the child learns from his spelling book, under ordinary circumstances, is, that to reason is crime. He finds, for example, that the letter *a* has one meaning in the word *fate*, but another in *fast*, another in *fall* and another in *far*; that the letter *o* is not sufficiently signified by the use of the letter itself, but by a multitudinous and disheartening combination of signs, as illustrated in the words *owe*, *blow*, *door*, *foe*, *sew*, *dough*, *beau*, *coal*, *yeoman*, *court* and *sword*; that the letter *o* in the words *done*, *come*, *son*, etc., is not *o* at all; that the sound of *i* is spelled without the use of that letter in such words as *ty*, *buy*, *bye*, *my*, and *rye*; and that when that letter is actually employed to express a sound, it often means something wholly different from itself, as in the words *is*, *tin*, and *if*.

In his efforts to construe combinations of letters, the pupil fares no better. The letters *ai* in *jail* are not the same in *said*; the letters *eo* in *people* are something else in *yeoman*, and something else in *pigeon*, while *ough* means *o* in *dough*, *oo* in *through*, *uf* in *tough*, *auf* in *trough*, and *ou* in *plough*. The methods of expressing the sound of *e* and of pronouncing that letter, in the words *believe*, *receive*, *receipt*, *conceal*, *increase*, *concede*, *proceed*, *people*, and *sleeve*, are necessarily an inexplicable puzzle to any child or man.

The two letters *ea* form one of the most frequent combinations in our English words, but they have one sound in the word *head*, another in *bead*, another in *heard*, another in *heart*, and another in *real*. It is alleged by one author that the sound of *sh* in the word *shall* occurs in over 3,000 English words, and is represented in twenty-two different ways. Some years since, a record was kept in one of the post-offices in this state of the various combinations of letters resorted to for spelling the word *Chicago*, on letters addressed to that city, and the total number was found to be not less than eighteen or twenty; but the most interesting fact about the matter is that the erroneous spellings, phonetically considered, generally excelled the approved orthography. Prof. Wm. T. Harris, the distinguished Superintendent of Public Schools for the city of St. Louis, is our authority for the statement that the word *scissors* can be spelled in many thousand different ways, and have Romanic analogies to authorize each spelling.

Examples of these difficulties and discordances might be multiplied indefinitely; they extend to all phases and complications of the system. The pupil readily realizes that he is to spell by sight, and not by sound; that the signs of sounds are comparatively meaningless and worthless; that the composition of words is to be memorized arbitrarily; that he can write no sound with certainty of accuracy, until he has seen it written; that he can pronounce no word with certainty of accuracy, until he has heard it pronounced; that he cannot hope to become master of the language until he has conquered the dictionary of words piece-meal, and he enters upon life impressed with the painful consciousness that he must spend years of time in learning that which should be learned in as many months. In the cultivation of our lands, the wooden

plough and the slow sickle are rejected, but in the acquisition of knowledge our facilities, in respect to orthography, scarcely surpass those of the semi-civilized peoples of the east, who are alleged to be content with no less than 3,000 characters to represent 500 syllabic sounds.

In an address by Prof. March, of Lafayette College, in 1876, that learned scholar in philology referred to a computation which had been made, showing that "we throw away \$15,000,000 a year, paying teachers for addling the brains of our children with bad spelling, and at least \$100,000,000 more in paying printers and publishers for sprinkling our books and newspapers with silent letters." In a paper, read before the State Teachers' Association of Wisconsin, in July last, the late Prof. Stephen H. Carpenter, of the University of Wisconsin, stated that "as a basis upon which to estimate the loss occasioned by the employment of useless letters and combinations," he had counted the letters in the defined words, upon two pages of Worcester's Quarto Dictionary, and found an average of twenty-three per cent. of such letters silent; from which he assumed that twenty per cent. of the cost of every book is occasioned by our vicious system of spelling, and that a reformed orthography would reduce Webster's Dictionary from 1,700 pages to 1,350 pages, and the price proportionately.

The proposed reform, based upon the use of a definite sign for every distinct sound, and the rejection of all signs which do not fulfil this office, practically requires the banishment of at least three letters from our present Romanic alphabet, and the addition of eighteen or twenty new characters. Should such a modification be adopted and agreed upon, the contrast between the old and new orthography would not be essentially greater than that of the original text of Chaucer,

or Shakespeare, or Milton, and the text of any modern publication.

It is not difficult to form an estimate of the practicable possibilities in this respect, from the experience of the past. In the first edition of the authorized version of the English Bible we read: "Give eare, O ye heauens, and I will speake," etc. In Tyndale's New Testament, the pronoun *it* is spelled in eight different ways. Shakespeare spelled the words *pilgrim*, *certain*, *black*, and *again*, with the final *e*. At a more recent period, at the dictation of Noah Webster, we have changed the spelling of whole classes of words, and we no longer write *honor* with a superfluous *u*, or *traffic* with a final *k*, or *traveler* with an extra *l*. Webster hoped for and attempted more radical reforms, and at every step in this direction was applauded by the learned critics of Europe. Such reforms have been made, and are now being made, in the languages of the European continent, and are sustained by the universities and by public opinion. That which has been done in the past, or elsewhere, can certainly be done in the future and here. There the state lends its influence to this line of progress, and here no condition to continuous progress really exists, but the exercise of a competent authority to give expression to a public opinion already formed. The tendency of this opinion is never backward into darkness, but forward into light—and English speaking peoples need but slight encouragement, under existing circumstances, to enable them to achieve a greater advance than Webster dreamed of or dared to suggest, half a century ago.

In a limited degree, the proposed reform has been practicalized in many of the public schools of the United States and in Europe, by a phonic method of teaching pupils to read and spell. By this method, each let-

ter having more than one sound, is printed in various forms, the number of forms corresponding with the number of essential sounds; while letters silent in the text are printed in hair-line type, to denote their oral uselessness and insignificance. By this method, the pupil who has learned the letters of the alphabet, and their respective forms, can pronounce any printed word in the text without hesitation, even if he has never before seen the word, or is ignorant of its meaning. It is claimed by eminent teachers, that this method saves one-half the time usually occupied by pupils in learning to read and spell correctly. The diacritical marks used in readers as a guide to the sounds of letters, is an imitation of this method. Unfortunately for both expedients, no sooner does the pupil leave school than the facilities there provided him for the pronunciation of words are necessarily left behind, and ever after he is doomed to wrestle with his English alphabet, without the aid of special forms, hair-line type, or diacritical marks, to denote the special sounds of letters, or to distinguish the valuable from the worthless. The spelling reform, in its perfection, means nothing more, and nothing less, than to generalize and popularize the principle of those easy methods of reading and spelling, already demonstrated to be wholesome and valuable by practical application in the restricted degree stated, and thus dispensing with that obnoxious system of English orthography described by Lord Lytton as "a lying, round-about, and puzzle-headed delusion."

The deficiency of system and organization in English orthography, while alleged to be discreditable in itself, is not assumed by us to be discreditable to the history of the peoples upon whom its use is enforced by long usage, and by laws of growth

and development far beyond their immediate control. It is true, that there is no known language of the globe, living or dead, which has not contributed something to the English vocabulary; and it may be at least gratifying to pride of race to believe that the facts we deplore are but the fruit of innumerable conquests, and a predominating activity in literature, arms, and commercial competition. However this may be, the fact of obnoxious and expensive imperfections remains, and with this fact we are compelled to deal as best we may. And we may safely add, that a capacity to organize and utilize the verbal conquests of the English speaking races would redound to their credit quite as much as the methods by which their victories in this department have been achieved.

The agitation of this question is not promoted at the present time under such auspices as to beget any timidity on the part of those who possess any legitimate means of imparting positive aid to the proposed reform. The weight of scholastic opinion is positively on the side of every wholesome effort in this direction; and organizations in this behalf, in this country and in England, at the present time, embrace scholars and statesmen of the highest personal attainments and public repute. In England, more than one hundred school-boards of the kingdom, including the school-board of the city of London, petitioned the crown for the appointment of a commission to initiate measures of reform in this department. Similar commissions have been appointed by one or more legislatures in the United States, and the movement is being actively supported by philologists of distinguished character in American and foreign universities and colleges; also by organized bodies of citizens and by ably conducted publications. During

the past season, nearly four hundred residents of Wisconsin, officers and professors in our colleges and teachers in our public schools, have united with Professors March, of Lafayette College, Goodwin, of Harvard, Trumbull, of Hartford, Whitney, of Yale, and Haldeman, of the University of Pennsylvania, in a memorial to Congress asking the appointment of a national commission, and representing that the irregular spelling of the English language causes a loss of two years of school time of each child, and is a main cause of the alarming illiteracy of the people.

The objections to reform in orthography sometimes urged by philologists, are not deemed worthy of extended consideration in this connection. The proper purpose of language is not to preserve its own imperfections, and thereby supply historic hints to verbal experts. Nor is the modern significance of written words, in a vital degree, dependent on their origin and historic form. Nor is the historic character of language necessarily lost or essentially obscured by improvements in its orthographical structure. A natural and rational method in orthography—such a method as the word orthography itself implies—at the worst, could be regarded as but one change in addition to innumerable previous changes—the last certainly equal in historic and illustrative value to any preceding series of modifications. And the sounds of words, really the more useful and reliable source of information in respect to the origin and definition of words, would be rendered far more definite, permanent, and secure than under existing circumstances.

As we have already intimated, the opinions of English authorities are now practically in accord as to the utility and propriety of reform. Unfortunately, however, the same unan-

imity of opinion does not exist as to the precise extent or precise method of the proposed reform. Various modifications of the alphabet have been devised—some of them but slightly modifying the number, form, and force of the letters now in use, while others imply radical changes and embrace distinct signs for the forty or more distinct sounds belonging to the spoken language. None of these are without merit, and all tend to promote the general purpose, which is increased facility, brevity, and economy of time, in written expression.

It is not the duty of this commission to devise a new alphabet, or to pass judgment upon the comparative merits of new alphabets already devised by others. We are decided in the opinion, however, that it is essential to success that any reform undertaken should be radical and complete. Public prejudice and immemorial usage are formidable hindrances to progress, but cannot be best overcome by concessions of principle, or coaxed into submission by shallow and frivolous devices. The intrinsic merit of the proposed reform is its only argument and defense, and compromise implies little or nothing less than discouragement and surrender. In the nature of things, that form of a letter which possesses the largest degree of simplicity and individuality, is best adapted to its purpose, as a written or printed symbol of sound; and no concession which implies a sacrifice of clearness, distinctness, or

such a reasonable degree of harmony as is consistent with convenient diversity in form, is necessary, or should be tolerated.

Nor do we believe the practical difficulties presented to be insurmountable. It is true we have in this country no central authority to enforce a higher standard of excellence in this department of literature. We are also aware that voluntary and disinterested efforts to enlist the co-operation of teachers, publishing houses, and the press have signally and necessarily failed. The authority for all, in orthography, is the dictionary—and not too much is to be expected from publishers of dictionaries, while solely dependent upon their general sales for the rewards of their enterprise.

It is fair to presume, however, that if a reformed alphabet and a modified orthography should be presented, under such conditions as to command the comparatively united approbation of scholars, and especially of persons and organizations devoted to the purpose of reform, such a measure of authority would attach to the movement as to commend it to legislative consideration. In such case, it would be the undoubted prerogative of the state, as a measure of public economy, to promote progress in the adoption of the superior method; not by arbitrary enactments, discordant with popular practice, education, and opinion, but by affording an opportunity for the natural operation of the law of selection.

ON SOME IMPORTANT PRINCIPLES OF COMPARATIVE GRAMMAR AS EXEMPLIFIED IN ABORIGINAL AMERICAN LANGUAGES.

BY THE REV. JOHN CAMPBELL, M.A., MONTREAL.

SO soon as a scholar seeks to acquire the knowledge of a language other than his own, he enters the domain of comparative philology. It is impossible for him to proceed in his studies with any degree of intelligence, without comparing his native forms of speech with those of the language he strives to master. The declensions and conjugations of Latin, Greek, Sanscrit, French, German open up a new world to one who has known little more of declension than a possessive case, and whose ideas of conjugation are largely limited to the use of auxiliaries. The divinity student, whose mother tongue is Gaelic or Erse, is not astonished to find only two tenses in his Hebrew and Chaldee verb and to meet with the pronoun as a suffix instead of a prefix, because these are in accord with the genius of Celtic grammar; but his English-speaking companions awake, in the study of these languages, to the realization of a new order of thought. Grammar is found not to be the same all the world over; the mechanical disappears in the philosophical; and the memorizer of forms becomes an observer of mental processes. In the syntax of different languages he learns what prominence is given by those who speak them to existence, quality, personality, action, time, modality, relation, and instrumentality; and grammar thus becomes

a psychological phenomenon worthy of any man's investigation. Such studies have generally been pursued within the narrow range of the Indo-European languages, to which the Semitic have occasionally been added. The Turanian languages have been paid little attention to, save by professed philologists, although it is among them that the simplest representations of mental processes are to be found. Nearly all the shades of Turanian grammatical distinction appear in the tongues of this continent, and I propose to refer briefly to some of them in this connection.

The student of Latin, Sanscrit, or German grammar knows that prepositions are not always placed before the words they govern, but that they sometimes merit to be called postpositions. Thus in *Æthiopia lenus*, *Italiam versus*, *mecum*, *Ehre halber*, *Uns entgegen*, *die Nacht durch*, we have the impossible English constructions, *Æthiopia as far as*, *Italy towards*, *me with*, *honour for the sake of*, *us against*, but also one that is possible, *the night through*. The Latin frequently dispenses with a preposition, which is not therefore regarded as unexpressed, but is recognized in the case-ending of the word governed. Was this case-ending originally a postpositional particle in Latin, and in Greek, Sanscrit, German and other languages possessing declension?

The Hebrew, Arabic, and Assyrian in their most ancient forms had case-endings as well as prepositions, but the former soon fell into disuse. The ancient Egyptian employed prepositions, but knew no declension. The declension of Gaelic and Erse nouns, as seen in the noun itself, affords no countenance to any connection of inflection with postpositions; for the case changes are generally found as alterations of the medial vowels of the word, not as suffixes. The preposition combined with the article is the true mark of case, as in French. The Malay and Polynesian languages are prepositional in the same way generally as Gaelic and French, declension being marked by a prefixed article affected by a preposition. In some of them the article is invariable, the preposition thus appearing in all its integrity. We may say, therefore, that the Aryan, including Celtic, the Semitic, and the Malay-Polynesian languages are all prepositional, although exceptional cases of the employment of postpositions appear in some of them. But the tongues which are generally denominated Turanian are postpositional. Thus the Ural-Altaic family, comprising the Finnic languages of Europe and the Tartar, Mongol and Tungus of Asia, together with the Dravidian or Turanian Indian languages, employ postpositional particles. The same is the case with the Tibetan, and with the Japanese and cognate tongues. The Chinese, and many of the Indo-Chinese and Himalayic languages, generally known as Monosyllabic, employ prepositions.

Now what we call, and as students of comparative grammar wrongly call, a preposition is a term expressing relation of possession, attribution, instrumentality, &c. To employ such a term as a preposition proper is to set relation before existence, an abstract term before a concrete. Judging of the psychological value of such a

procedure by the peoples who employ prepositions, one naturally regards it as indicating a higher order of mind than that which gives prominence to existence and subordinates the relation as a postposition. Yet the preposing Malays are not regarded as a race possessing much intellectual power; and the Accadians of ancient Chaldæa, who were the virtual founders of Asiatic civilization, the inventors of letters, and the authors of Old World mythology, were a postponing people. Nor can we say that the postposition is the older, and the preposition the younger order for the expression of relation, because the Egyptian, one of the oldest of all languages, was prepositional. There would seem, therefore, to have been originally a radical distinction in men's ways of looking at things in their relations, as well as a subsequent modification of view, as exemplified in the history of those languages which have combined prepositions with case-endings or have discarded the latter for the former.

Turning now to this continent, we find that the phenomena of the Old World in this respect are reproduced in the New. Some of our American Indian languages are prepositional, but the greater number employ postpositional suffixes. The most important preposing languages are the Algonquin in North, the Maya-Quiché in Central, and the Mbaya-Abipone in South America. Of these the Algonquin family is largely Canadian. The Chippewa or Ojibbeway is perhaps better known than any other tribe of this family, but the Delaware, the Cree, the Ottawa, the Missisagua, the Nipissing, the Abenaki, the Micmac, are not unfamiliar. Captain John Smith found Algonquins in Virginia. The States of Massachusetts, Maine, and Illinois took their names from tribes of this stock. Mohicans, Narragansets, and other

New England clans, have been celebrated in the writings of Fenimore Cooper. The name of Tecumseh has immortalized the Shawnoes. On the Saskatchewan the Blackfoot is as well known as the Ojibbeway in Ontario or the Micmac in Nova Scotia. And the Shyenne has recently risen into sad notoriety in connection with the barbarous Indian policy of the United States. These are but a few of the more important tribes of the extensive Algonquin family, whose employment of prepositions distinguishes them from the Athabaskan or Tinneh, the Dacotah or Sioux, the Iroquois, and the Choctaw families, which either border upon them or interrupt the continuity of their area. The languages of these neighbouring tribes or families of tribes employ postpositions, and postpositions only; but, while the Algonquin also makes occasional use of such particles, most of its terms denoting relation are prepositions. The partial use of postpositions by a preposing language is not purely American, for, as we have seen, it is the case in Latin, German, and Sanscrit. It appears also to a small extent in Chinese. The partial use of postpositions in Algonquin, therefore, may be explained either by the analogy of frequent exceptions to the rule in other preposing languages, or by the influence exerted upon the Algonquin by all the forms of native speech with which it is in contact. So few are the exceptions, that postposing languages may be said never to employ prepositions, so that the presence of these terms in a grammatical system, apart from the universality of their use, is sufficient to stamp that system as prepositional. The radical diversity of two grammatical systems belonging to one geographical area is well exemplified in the Chippewa or Ojibbeway on the one hand, and the Iroquois or Six Nation language on the other. The

expression, *under the bed*, is rendered in Chippewa, *anamatii nibaganing*, where *anamatii* is the preposition; but in Iroquois it would be *kanakt-okon*, where *okon* is the postposition. So, in Iroquois, *ontchicht-akta* is *near the fire*, literally *fire near*; and in Cree, *tchik-iskutek*, *tchik* being the preposition. In Polynesian, as in the Tongan *gi-he-afi*, we find the prepositional order, *gi* being *near*, *he* the article, and *afi*, *the fire*. But the Turkish order in *memleketah-yakin*, literally *city near*, is that of the Iroquois.

In Central America, the Maya-Quiché family contains languages that, in spite of postpositional surroundings, use prepositions exclusively. Such are the Maya of Yucatan, the Quiché and Poconchi of Guatemala, and the Huastec and Totonac of Vera Cruz. Two of these languages, the Maya and Quiché, were written in characters that may be termed hieroglyphic, and the latter is embalmed in an ancient literary record, the Popol Vuh, which has been translated into French by the Abbé Brasseur de Bourbourg. It is certainly astonishing to find the grammatical forms of the barbarous Algonquin agreeing with those of the cultivated Mayas and Quichés, as they do not only in regard to prepositions but in many other respects. The Maya *ti-luum*, "on the earth," and the Quiché *xol-ha*, "between the houses," are Algonquin, Malay, Semitic, Aryan, in form. The neighbouring Aztec, which generally employs postpositions, even when it apparently alters the order, really retains the postponing principle. For instance, in *y-ca-tell* we have *it-with-stone*, the mark of relation or instrument being indeed preposed to the noun, but postponed to the pronoun which represents it.

Once more we must traverse a great area of postpositional languages before arriving at any important family of preposing tongues. The Muyscas

of New Grenada, the Caribs of Guiana, and the Guaranis of Brazil employ postpositions, as do all the Peruvian tribes. In the Kiriri of Bahia, in Brazil, however, we find a preposing language, whose geographical position, strange to say, like that of some of the Algonquin dialects in North America, is almost the extreme east of the continent. But the most important preposing family of South America is the Mbaya-Abipone, including, besides these two languages, the Mocobi, Toba, Lengua, Payagua, and others. The peoples speaking these languages are found in La Plata and Paraguay, as neighbours of the postponing Lules and Vileles, who are also Indians of the Gran Chaco, and of the Araucanians of Chili. The latter people, belonging to the Chileno family, present one of the rare exceptions to the rule that postponing peoples are invariably postponing, for, while all the characteristics of their language are such as to link them with the postponing Peruvians, it appears that they occasionally make use of prepositions. This may possibly be due to Mbaya-Abipone influences.

Taken by itself the distinction between native American languages as preposing and postponing the term indicating relation may not seem such as to warrant any broad line of demarcation. It is, however, invariably accompanied with other distinctions. One of these is the position of the temporal index in the order of the verb. The Rev. Richard Garnett, quoted by Professor Daniel Wilson, says: "We may venture to affirm in general terms that a South American verb is constructed precisely as those in the the Tamul and other languages of Southern India; consisting, like them, of a verbal root, a second element defining the time of the action, and a third, denoting the subject or person." So far as the

three elements in the verb are concerned, the above statement is correct, but in regard to the order of root, temporal index, and pronoun, there is diversity. In the Tamul it is as Mr. Garnett has stated; thus, in *sey-gind-en*, I do, *sey-d-en*, I have done, *sey* is the verbal root *do*, *gind* is the present, and *d*, the perfect temporal index, and *en* is the pronoun. But in Mbaya "I came" is *ne-ya-enagui*, "I shall come," *de-ya-enagui*. The verbal root, *enagui*, is final, and the temporal index precedes not only the verbal root but also its prefixed pronoun; *ne* or *quine* being the index of the past, and *de* or *quide*, of the future. The Quiché of Guatemala follows the same order, as in *ca-nu-logoh*, "I love," *xi-nu-logoh*, "I have loved," *ch-in-logoh*, "I shall love," where *ca*, *xi*, and *ch* are the indices of the present, past, and future, *nu* or *in* being the pronoun, and *logoh*, the verbal root. The Algonquin agrees with these in preposing the temporal index, but differs in placing the pronoun before that particle, *e. g.*, *nin-gi-sakiha* is "I have loved," and *nin-ga-sakiha*, "I shall love," *gi* being the index of the past, *ga*, of the future, and *nin* being the pronoun. Thus the three prepositional families of American speech agree in placing the temporal index before the verbal root as well as the pronoun, the only difference between them being in regard to the relative position of pronoun and index. This is not Tamul, because Tamul is of the postponing Dravidian family. But it is Malay-Polynesian, so that in the preposing Tongan we have *goo-ger-aloo* "thou goest," *na-ger-aloo*, "thou didst go," *te-ger-aloo*, "thou wilt go." In these examples *ger* is the personal pronoun, *aloo*, the verbal root, and *goo*, *na*, *te* the indices of the present, past, and future respectively. Here then is complete agreement between the verbal forms of the Polynesian and of the American languages

which, like it, employ prepositions. Time and personality are thus more prominent in these languages than action, just as relation was found to be more prominent than existence.

In the postponing American languages we find the Turanian verb. The Quichua of Peru follows the order of the Tamul in *apa-n-y*, "I carry," and *apa-rcan-y* "I carried," or "have carried." In *apa* we have the verbal root, in *n* and *rcan*, the temporal indices, and in *y*, the pronominal suffix. The Quichua is a postpositional language, possessing what is rare among American tongues, a declension, the case terminations of which are plainly postpositions, such as the dative termination *pak*, the accusative *cta* and the ablative *manta*. The Finnic and Tartar divisions of the Ural-Altaic family follow the order of the Tamul or Dravidian and the Quichua verb. But as we have found the Algonquin differing from the Mbaya and the Quiché in the position of the pronoun, so in postposing languages we meet with the pronoun sometimes as a suffix and oftener as a prefix to the verbal root. Thus, while it is a suffix particle in Finnic, Tartar, Dravidian, Quichua, it is a prefix in Mongol and Mantchu, which, equally with Finnic and Tartar, belong to the Ural-Altaic family. It is a prefix also in Japanese and the languages connected with it in north-eastern Asia. Thus *watakusiga-mita*, "I have seen," in Japanese, consists of three parts; *watakusiga*, which Dr. Edkins, of Pekin, regards as the longest form in existence denoting the pronoun I, *mi*, the verbal root *see*, and *ta*, the index of the past tense. Similarly the Iroquois *ke-nonwes-kwe*, "I loved," contains first, the pro-

nominal prefix *ke*, second, the verbal root *nonwes*, and, lastly, the index of the past tense *kwe*. In all the allied postponing languages the temporal index follows the verbal root, so that the idea of action precedes that of time, just as existence precedes relation. The idea of personality varies in order even in the Mongolian branch of the Ural-Altaic family, as well as among the American Turanian languages, for, while the eastern Mongol says *bi alana*, "I kill," the Buriat Mongol says *alana-p*, "kill I." As a rule, however, the American Turanian or postpositional languages prefix the pronoun to the verbal root, thus giving prominence to personality. The Latin, by its sparing use of the pronoun and the substitution for it of the personal termination of verbs, follows the Finnic, Tartar, and Dravidian order.

The positions of the genitive in relation to the word governing it, of the accusative and its verb, of the noun and its adjective, vary similarly in the two classes of languages under consideration, of which, in Asia, Altaic and Malay may be regarded as the types. Similar variations occur in America among the languages already distinguished as preposing and postponing the terms which designate relation and time. These distinctions may enable us to form an opinion as to the derivation of our American Indian languages, and to refer them either to Malay-Polynesian or to Northern Asiatic sources. But they also enable us to form juster conceptions of language in its relation to thought, and to explain some of the phenomena which appear even in the grammars of an ordinary school curriculum.

CATHOLIC EDUCATION IN ONTARIO.

BY T. O'HAGAN, HEAD-MASTER, SEPARATE SCHOOL, BELLEVILLE.

THE problem of Catholic education is day by day assuming greater importance in Ontario. Catholics are themselves beginning to realize their position in educational matters. They are slowly recognizing the fact that it is not just or right that they should add their quota towards the sustainment of a school system in which the Separate School has not a place to lay its head. Aware of this, the Catholics teachers recently inaugurated a movement which is destined, at no distant day, to result in the establishment of a wise and proper separate school system. That such a step was necessary no person acquainted with the workings of Separate Schools in the Province will attempt to gainsay. Catholics are themselves the best judges of the wants and necessities which characterize the present so-called Separate School system. The verdict is that we virtually possess no Separate School system. Who are to blame for this state of things, it is not within my province to say. The fact is, that in Catholic Quebec, with only one hundred and seventy thousand Protestants, the latter are granted a separate body in the Education Department with a Deputy Minister of Public Instruction. If, therefore, the Protestant schools of Quebec do not show progress, it is at all events not owing to the intolerance of a Catholic people. Nor is this the only feature to be admired in the liberality of Catholic Quebec. In the supervision of schools, Protestants are

also allowed distinct Inspectors for their own schools, and the very happy privilege too, of having Protestant Normal and Model Schools for the training of their own teachers. So much for Catholic Quebec. Why, even Manitoba, the infant Province, but eagerly lisping the educational alphabet, shows a better disposition to solve the school problem to the satisfaction of all. The last issue of an educational contemporary contains a portrait of a Rev. Mr. Pinkham, who is at present Superintendent of Protestant schools in the Prairie Province. What does all this indicate? That we are surrounded by liberality. In fact, were I asked to bound Ontario educationally, I would say, bounded on the north-west by liberal Manitoba, on the east by liberal Quebec, and on the south by the state of stolid indifference. And yet Ontario, proud in its intellectual growth, with a Catholic population of some two hundred and fifty thousand, possesses no Separate School system. True, we have schools, but do schools, I ask, constitute a system? I think not. As well might the term army be applied to a concourse of undisciplined populace. A great many, and Catholics too, hold up their hands in indignation and ask, why do our Separate Schools not show better results? Show better results! Why, it is a wonder that they sustain their character as they do. In what manner, I ask, were Separate Schools first ushered in? When the public school infant, rocked and dandled into

a promising existence by the sweet lullaby of the Catholic ratepayer, waxed strong and vigorous, the Separate School infant, born in adversity, confronted at every step by an obstacle, has been utterly left without a protector, a patron, or a guardian. It is very well to speak of the success of public schools, but to what should that success be attributed, save to a judicious legislation and care? Strip the public schools, at this moment, of their uniformity, their careful supervision, their patronage from the Educational Department, and the array of training schools which respond to their wants in supplying good and efficient teachers, and I will show you, within the space of ten years, an Ontario desert in educational matters, with not even a single oasis to meet the eye. It is time this nonsense concerning results in Separate Schools was consigned to a speedy grave. And I believe it to be the duty of every Catholic to smite such nonsense with no aimless blow. Give Separate Schools the same legislation, the same government, the same care that is bestowed on the public schools, and I venture to assert that, within five years, they will show results which will challenge competition from any other system of schools on the continent of America. In the new School Bill introduced by the Honourable Mr. Crooks, Minister of Education, the trustees of a separate school in a village, town, or city, being the county town, are invested with the power to appoint a Catholic on the County Board of Examiners. This is good enough in itself as regards representation in the matter of the examination of teachers, but such legislation means simply nothing towards the proper establishment of a Separate School system. I cannot see in this any provision for the proper and uniform supervision of our Separate Schools. I cannot see in this the right to establish Catholic Model Schools

for the training of Catholic teachers. Nor can I see in it any approach to the liberality extended to the Protestant minority of Quebec in their representation in the Educational Department. The Annual Report of Education, for 1877, gives the total number of Separate Schools in the Province as one hundred and eighty-five, an increase of eighteen over the previous year. This speaks well for a system of schools with no legislation and care. Notwithstanding their gasping for breath, and the precarious existence dragged out, they have possessed sufficient vitality within themselves to multiply, if not a hundred, at least a dozen fold. This goes to prove that the Separate School is not an institution of yesterday, nor of to-day, but a fixed necessity in the dawning hope of Canadian educational greatness. That the education of some twenty-four thousand Catholic children must necessarily be of vital importance, every one will quickly recognize. Now this education devolves upon the Separate School, which is the bone and sinew of Catholic education in this Province. Should we then stolidly fold our arms, watch the progress of the age, applaud and say, well done public schools! while our own schools are through neglect, in many instances, drifting back into chaos. I think not. Let us therefore, by legislation, endeavor to release our suffering Separate School from this pent up Chinese boot, in which by accident of birth, it has been up to this confined. A proper legislation for our Separate Schools can never impair the growth and progress of the public schools. In fact, strictly speaking, I cannot see but one system of schools in this Province, and this comprises both separate and common schools. Each school has a share in the advancement of educational progress in our midst. Each is public, in every sense of the word. The only line of demarcation between the two

classes of schools, consists in the light in which Protestants and Catholics view the purposes and ultimate object of a true education. This gulf must necessarily exist, nor can any accommodating legislation, or specious compromise bridge the chasm. In vain will school boards and school authorities moot amalgamation. The Catholic Church, in educational matters, as in matters of faith, is the same yesterday, to-day, and forever. We know our position, and by a moral calculation, measure the sum and distance which divides us. Nor is it incumbent upon any Catholic to rail against public schools. In fact, I think that they are worthy of great admiration, at least in this Province. And Catholics, as well as Protestants, should feel proud of them as efficiently fulfilling the purposes for which they were designed. Who, I ask, is not struck with the form and beauty of a proportional man? So with the institution of the public schools, we are forced to admire its harmonious symmetry. But should we go a step farther, and like to the beautiful man, enquire about the beauty of the soul, would its moral being, I ask, correspond to its flashy intellectual grace on the surface? Let the virtue of a Canadian people one hundred years hence answer. It is not my intention to arraign the public schools of Ontario before a tribunal to make confession of their sins, or to answer for the faith that is in them. This is not my business. The public schools belong to the state, and if they have any school sins to answer for, or chastening virtues to be admired, Catholics are partakers of neither the one or the other. This can, at least, be happily said of our public schools, that incidental moral instruction has not as yet been forbidden in their class-rooms, nor is religious instruction regarded in any light as a crime. Not so in the American Republic. In the "eat and drink and

bemerry" of the Commonwealth, proud intellect reigns supreme. The soul is nowhere. What is the consequence of this? The boasted state school, in all its intellectual glory, is but the cradle of infidelity, the noxious nursery of a godless race. The Government which legislates God out of the school, and guards its portals like a fallen angel with fiery sword in hand against the introduction of religion within its precincts, is but sharpening the claws of the people to commit crimes which will necessitate a still more fiery sword to guard and keep within the iron portals of a prison wall. The greatest statesmen America ever produced were educated under religious influences. Now, scarcely a shadow of religion lingers around her schools. Shall the future statesmen be but shadows of the past? So much for religion in education.

Let us now see what the Catholic Church, which justly says to the state, "I only know how to educate, you do not," has done in the shaping of the educational history of Ontario. True, the Catholic Church does not pile its work before the public-gaze, and say this is my work. She seeks rather to fulfil her mission in education in the most silent and unostentatious manner. She does not choose to measure swords with an opponent in the arena of literary wrangling. The task of leading the mind onward, and the soul upward, is accomplished in the quiet retreat of her colleges and convents, amid no flourish of trumpets or plaudits of an assembled people. The result is, that Catholic education in this Province, in one sense, stands pre-eminently high. There is scarcely a town of any importance in which the bell of the convent does not sprinkle the air. These convents, in many instances, equal, and even surpass, many of our High Schools. Nor is it intellectually alone

that they are most attractive. Many Protestants prefer to send their daughters to the convent on account of the careful and virtuous training which they receive at the hands of their teachers, the sisters, and which often shapes their whole future life. True, our Catholic Institutions do not make a display of their work before Commissioners of Education and World's Expositions, but the Catholic Church is contented with meriting the words addressed to her by her Divine Master "Well done thou good and faithful servant!" She will be content with one great World's Exposition, when the great Creator of the universe will form the tribunal—*then* the work of the intellect *must* come second to the great work of the soul. I have said that the Catholic Church is doing great things in the matter of education in Ontario, and I believe she would do much greater were our Separate

Schools not fettered by an unjust legislation. Catholic teachers of Ontario you have a noble work in hand. Yours is a dual engagement. You educate alone, not the intellect, but you educate the heart. In a word, you educate for this world, and you educate for the next. Let there be then a harmonious blending of Catholic thought and Catholic action in the matter of obtaining a better legislation and recognition for our Separate Schools. A blending of element, a blending of thought, a blending of firm and decisive action. These will carry. And though public opinion, proud in its own conceit, may at times revile your work, you can afford to vindicate yourself in the words of Cardinal Richelieu to King Louis of France, "pass sentence on me if you will, my name, my deeds, are registered in a land beyond your sceptre."

THE LUNGS AS THEY CONCERN EDUCATORS.

BY T. W. MILLS, M.A., M.D., RESIDENT PHYSICIAN, CITY HOSPITAL, HAMILTON.

INASMUCH as the writer's last contribution to this journal dealt largely with ventilation—pure and abundant air supply for schools—the organs concerned with appropriating oxygen and eliminating carbon dioxide may, in natural sequence, be treated of in this paper, which the press of professional work at this season must render brief—perhaps somewhat synoptical even in some instances.

Anatomy naturally precedes physiology, and the latter hygiene; so in conformity with the principle let us first examine the anatomical structure of the chest and its contained organs. The chest is a bony framework

strengthened and bonded in front by the sternum—a flat bone; and behind by the vertebral column, both these permitting a certain amount of movement backwards and forwards; but as compared with the ribs comparatively fixed; especially must the spinal column be considered as the fixed plane upon which the ribs move up and down, each one much like a pump-handle in the body of the pump—to use a very rough sort of illustration—for the writer wishes to be understood not only by teachers but by pupils; which latter class he is pleased to learn are among the ambitious readers of this journal. Now,

the ribs are inserted at a considerable angle, and in consequence the chest is capable when they are elevated, of an appreciable increase in the antero-posterior diameter—as any one may test by measurement of its circumference during a full *inspiration*.

When the diaphragm, or chief breathing muscle, descends in inspiration the chest increases in its vertical diameter; so that with each inspiration the chest is enlarged in both diameters. The elevation of the ribs is effected under ordinary circumstances by the muscles attached to them (intercostals); when a severe demand is made on the breathing power, certain muscles attached to the neck, shoulders, &c., assist the intercostals. This is well observed in some diseased conditions, notably in asthma. The principal organs of the chest are the heart and lungs. These as a rule bear a close relationship in size and power to each other, and as upon their action the vigour of the body chiefly depends, the value of attending to their development will be obvious at a glance. As the relation of the lungs to the chest walls does not seem to be very well understood by ordinary students clearness will be aimed at even to the point of simplicity. The lungs may be popularly yet correctly viewed as made up of a number of tubes composed of cartilaginous rings except in their extreme ramifications, where this form is merged into simple membrane; upon which tubes we find gathered a vast extent of membranous surface into an infinite number of duplications or unfoldings on which the finest lung capillaries are distributed. Now, as any one may test by taking a piece of lung ("lights") in his hand and squeezing it, the air contained in the cells may be pressed out; by insertion of a tube into a bronchial pipe the lungs may be inflated. The lungs as they exist in the living animal are

inflated or expanded by the rushing in of the air surrounding us and ready to enter wherever any opening is provided for its ingress. All that the animal organism has to do with the act of inspiration is accomplished when the muscles enlarge the chest and give room for the expansion of the lungs or for the air to find additional space to fill. In *expiration* there is more—the elastic tissue of the air cells contracts—the chest is diminished in size by the relaxation of the rib muscles and descent of the diaphragm—so that *under all circumstances the lungs and chest walls are most accurately in contact*; as are also the lungs and the central dividing muscle, the diaphragm. On this fact stress is now laid in view of conclusions to be drawn later.

The lungs are concave below to fit the convex upper surface of the diaphragm and convex above and project a short distance into the neck above the collar bone. Inasmuch as tubercular ("consumptive") disease of the lungs commences most commonly at this site (apex) it is important that this part of the body should be well covered. The folly of low-necked dresses, will thus be apparent. This practical hint is by the way, however. It is said that the size of the nostrils or doors of entrance for air are large in persons with large chests—and naturally so. Certainly the size of the closed fist is a pretty accurate measure of the size of the heart. But the measurement of the chest will always, from the anatomical facts stated above, give the size of the lungs—making allowances, of course, for the chest walls—the size of which must be subtracted. What determines the size of the lungs? The size of the chest wall it will at once appear. The size of the bony part of the chest depends upon the same law of development as osseous structure elsewhere, viz. : upon

the size and extent of functional use of the muscles attached thereto, that is to say, of course, limited by the original power of the bone to reach a certain size under the conditions most favourable to its development.

The question next in order is, under what circumstances is the muscular exercise requisite to enlarge the chest walls and therefore the lungs induced? Suppose that A.'s heart, when seated quietly in a boat beats at 70 per minute. Let him now take the oars and row at 20 strokes per minute—what follows? The general muscular exercise exhausts by the increased vital processes, the material supplied by the blood at a greater rate or, in a word, demands a larger or quicker blood supply. This need is felt in every part of the whole economy by the nerve distribution, and telegraphed, so to speak, to the heart and lungs simultaneously—or say to the heart if you will, which forces blood more rapidly—to all parts, including the lungs. They, to supply oxygen to an increased volume of blood, must move more rapidly. The muscles of respiration harmonize in their movements with the requirements of the lungs, for all parts of the nervous system alike are made to feel the need of increased muscular action, and so the muscles of respiration act accordingly. By increased action of the muscles of respiration, the bones of the lungs, as well as its soft tissues, are increased in size by the invariable law that in all animals up to a certain period of their existence manifests itself, viz., that *functional activity produces growth*. Why it is not difficult to understand! To return to our oarsman "A." His heart-beats are increased very greatly by his 20 strokes to the minute for a few days; but soon with as little exertion he rows at the rate of 30 strokes—the machinery accommodates to this form of exercise. But all the

while if he be not beyond the age when growth is impossible, his muscular system, his lungs and his heart, are enlarging. The heart enlarges, of course, for it is a very complicated interweaving of muscular fibres. Now by an opposite course—the heart is enfeebled and the lungs diminish in size. The chest becomes cramped—deformed and actually flattened, by want of exercise and through a faulty position, perhaps. Some of these exercises involving deep and continuous respiration, in which so many men of the desk and sedentary occupations generally now engage, are admirable counteractives to the evils of such occupations.

If the foregoing explanations have rendered the subject clear, the conclusions about to be drawn will be at once acquiesced in, and the importance of our altering somewhat, indeed largely, our mode of education acknowledged. One other fact must be plainly set forth. Under ordinary conditions of rest, only a small part of the lung-capacity for air is utilized; so that the individual who sits from morning to night at a desk uses up much less oxygen than the labourer who toils in the open air, and more fully expands his lungs. The same holds of all who do not exercise vigorously. Perhaps no form of exertion so enlarges the chest and lungs as running. This appears from an inspection of the formation of the chests of animals that are fleet of foot, and as a matter of fact do run much, as the deer, grey-hound, race-horse, &c. Rowing is also very good, but the position is antagonistic, the only draw-back perhaps. It has the advantage, moreover, of developing all the muscles of the body, including those of respiration and of forced inspiration.

The following conclusions seem to be warranted by the foregoing facts.

(1.) Inasmuch as the development of the body is effected chiefly before

the age of thirty—and indeed before the age of twenty, in great part—it is clear that more time should be given to physical culture before that age than after it.

(2.) Special attention should be given to the highest possible development of the chest and its contained organs, as these organs are the great controllers of life.

Those who die of Phthisis ("consumption,") have almost invariably ill-formed and small chests.

(3.) The present school hours (5-6 hours daily), are too long for all children below twelve years, to allow of sufficient time being spent in the open air. The writer is very glad to notice that this subject—the necessity of shortening school hours for the younger children, has had recently the able advocacy of Mr. Buchan, Inspector of High Schools. Fond parents are ignorantly, but surely, making early graves for their children by their urging the long hours, while our educators are equally surely, by favouring the system, garnishing their tombs. Would that the laity could be induced to study physiology, and that it were *practically* taught in all our schools.

(4.) Since in the sedentary, especially when numbers are crowded into one room for hours together, the lungs rarely are filled full of air; and, inasmuch as the air of school-rooms becomes more or less impure, some special precautions ought to be taken to counteract this evil during school hours; such as having the children rise, while the windows might then, without danger, be opened if some simple exercises were performed, as putting up and down the arms, and filling the lungs as full as possible with air. A short and lively song as a kind of physical exercise, and much more that each teacher can devise for his own class, might also be attempted.

(5.) Singing, as it necessitates deep

inspirations and expirations, is a good exercise for the chest. The pupils should stand and the air should be pure. The last period of the day is objectionable—the air is then vitiated.

(6.) The ordinary romping of the school yard, while it answers the purpose of filling the lungs, &c., is so objectionable from other points of view that it behoves all educators to study closely how to design modes of exercise and amusements that shall at once best develop the body, elevate the heart, and quicken the intellect. That teacher will also soon be appreciated by his class, who puts himself to this pains to accomplish what all youthful minds are set upon, thanks to nature—amusement—the oil of life.

(7.) That set of amusements from which running is wholly banished, must be extremely faulty; if girls would run more they would be obliged to alter injurious forms of dress; and there would be fewer namby-pamby creatures that only caricature the genuine woman. Besides, we would have fewer gossips of all ages, if it were the custom for girls to engage to a greater extent in physical exercises. The simple reason is, there would not be time for gossip, nor would there be that indigestion, nervous derangement, &c., that predispose all of us who are the subjects of them, whether male or female, to think ill of our fellows.

A certain Collegiate Institute situated near a fine sheet of water, has its pupils' and its teachers' boating clubs. The studious youths of this Institute have thereby borne much hard work as have also, the teachers who are by the way among the cheeriest, uncomplaining set of men, notwithstanding the pressure of the awful "Intermediate," one could desire to meet. A word to the latter.

The wisdom of teachers taking a solitary walk is questionable—a soli-

tary run is better. Why not take a dog if no human companion is to be found? The companionableness, if not the naturally sportive mood, of the animal, would divert as well as give tone to the mind.

The time has come when the teachers, the educators of all classes, must instruct and lead the public in the matter of physical development. We do not live to get riches, or to get fame, we live to develop the nature which is ours to its fullest; and be it soon or late we shall suffer the penalty of neglecting to observe nature's inexorable decrees. If parents do not see that their children are suffering by too much of school life, as it is, let the teacher give the family physician a hint. Great is the responsibility devolving at the present time on the medical profession. It would be well if teach-

ers could enlist their interests more fully in the matter of education; get an expression of opinion from the whole profession in a town or country, and the public must see that there is something wrong. The subject might be brought before the medical societies that exist in almost all sections of the country. All medical men must know that five hours' confinement (imprisonment), in a public school is too much for a child of five years. Well then, let the medical men as a body be asked to express an opinion, and something will come of the matter. We now repeat *sana mens in sana corpore*; practically we ignore it, especially in cities; in the country the evil is counteracted in some degree by circumstances.

DEFECTS IN OUR TRAINING SYSTEM.

BY J. B. SOMERSET, INSPECTOR PUBLIC SCHOOLS, ST. CATHARINES.

NO apology is needed for the title of this paper; for, however marked may be the improvement of late effected in the preparation of teachers for their work, the arrangements for this purpose are universally recognized as being hampered in their operation by the defects incidental to all newly introduced systems, and by the crudeness of the first efforts to give them effect.

The introduction of the system of County Model Schools is, without doubt, the most important step taken in educational reform since the change in 1871; and it will be more marked in the future as an era in educational progress, when its administration is improved and its results developed,

than it is now; but there is a danger that in our self-congratulation at its recognition as a part of our school machinery, we may become blind to its defects or apathetic in regard to their removal.

In view of this, a consideration of the legitimate aims of a County Model School, and the means of their realization, will not be out of place.

Generally, a Model School is intended to accomplish for a teacher in training, (1) the exhibition of the proper method of performing every department of school-work by that pursued by the teachers of the school; (2) the tracing of the method to the psychological and physical conditions in youth that have suggested its adop-

tion, in order that he may be made acquainted with principles capable of adaptation to various circumstances, and not mistake a mere slavish imitation of form or manner for the possession of a knowledge of the real art of teaching; (3) the affording him of such opportunities for putting these principles into practice under proper supervision, as may enable him to undertake the responsible charge of a school without excessive awkwardness or embarrassment, and (4) the provision of such incentive or stimulus to exertion and industry, while in attendance, that the student will be compelled to regard high attainments in this respect as of equal importance with a high standing in the non-professional subjects of examination.

No argument is needed for the proposition that any Model School, failing to realize these aims or any of them, fails to accomplish the results to be expected from such an institution; nor can it be asserted that the requirements are too high, or that the results are impracticable with the appliances at command, or of easy provision. That our County Model Schools have not yet attained to this standard, especially in regard to the requirement last mentioned, is as little matter for surprise as discouragement, taking into account the short time they have been in operation; nor is it any reflection on the ability or faithfulness of those who assumed the responsibility of their management without specific preparation for such work, and almost without notice. But the duty once assumed, it becomes imperative on those charged with it, to use every means to perform it with intelligence and care, and to prevent it from sinking into a mere perfunctory compliance with a legal form. That there is danger of its doing so is apparent to any one who has observed the

working of these institutions, and from causes equally apparent, yet happily easy of removal. To a consideration of these causes and a few suggestions as to the means of their removal, we will now address ourselves.

The principal departments of school work to be exhibited to the teacher in training during his attendance at the Model School, are, (1) organization; (2) government; (3) intellectual cultivation; (4) moral culture, and (5) physical development. A difficulty at once appears here in making the student familiar with the organization of a rural school, which in nine cases out of ten is the sort of school he will first assume charge of, while the school to which he looks as his model, is graded into at least three divisions. An attempt is sometimes made to overcome this by taking pupils from each grade into one room; but the similarity between these selected pupils and the heterogeneous collection that will present itself to a teacher just taking charge of a rural school, is but slight; besides the *unreal* nature of the classification militates against the impression it is designed to make. Plainly, the organization of a rural school is best exhibited in a rural school; and a series of visits to such in the vicinity by the students under the direction of the Model School master, would accomplish this object; but here we are confronted by another difficulty, viz.:—The time of the head master being usually claimed by a class of pupils in his own school, he has no opportunity to make such visits, nor even to supervise with satisfactory thoroughness, the practice of the students in teaching his own pupils. This obstacle to efficiency cannot be allowed to stand without injury to the interests of the students, nor can it be removed without neglecting the pupils of the school, unless some

provision is made to supply a substitute for the head master during his supervision of the teachers in training. The question as to what additional grant, if any, should be made to secure such a change, is, however, purely one of departmental management.

In exhibiting the proper method of imparting instruction to pupils, there is but one defect claiming notice, and it is one that has grown out of a previous lack of training facilities. It is only to be expected that the comparative absence of systematic training in former years, should now bear fruit in the instruction of the Principal being contradicted in the practice of some of the assistants—an anomaly that cannot long survive the present facility for the obtaining of correct information.

The cultivation of the moral and physical nature is only too much neglected, at the present time, in our best schools; but it is not too much to expect that the training in these schools will enlighten teachers on the importance of the supervision of pupils in the playgrounds, and of the proper ventilation and heating of the school-rooms, the neglect of which is fruitful of serious evils.

But it is the lack of a definite incentive to the attainment of professional skill that presents the most serious bar to the success of our Model Schools; and this lack is equally felt in the training of Provincial teachers. It may be advanced that the passing of the professional examination at the close of the Model School session being made conditional on the granting of a certificate, meets this want; but on the other hand, it is undeniable that students, almost universally, regard the non-professional as the tug of war, which once passed,

there remains the professional course to be gone through with, but nothing more to *work for*. There is no reason why professional excellence should not be a large factor in the qualification required for a higher grade of certificate, and there are strong reasons why it should exclusively determine the fitness of a candidate to receive grade A of any class. At the present time, an experienced teacher, with grade B, is generally preferred to one with grade A, whose experience is limited, simply because the lengthened experience is accepted as a guarantee of professional ability; but were the higher grade understood as indicative exclusively of a higher degree of skill in teaching, it would become at once a guide to trustee corporations in their choice of a teacher, and an object of ambition to teachers themselves, much more tangible than it is.

Again, the number of teachers holding third-class certificates in the Province is 4495, out of a total of 6468, or over two-thirds of the whole number. Can any one doubt that, of this large number, there are some whose industry or talent raises them above the dead level of their brethren, and should there not be some means found of distinguishing and rewarding merit in such cases, even at the very opening of their professional career? The division of third-class certificates, in grades A and B, is not now advocated for the first time for this reason; but their classification in this way, by the results of the professional examination, while accomplishing this object, would also supply a stimulus to our County Model Schools that would largely increase their usefulness, of which the whole Province would reap the benefit.

THE DEPARTMENT AND THE SCHOOL BILL.

BY THE EDITOR.

IN the late war the Turkish troops, it is said, were instructed never to fire upon a Russian General, lest he should unfortunately be replaced by a man of some military capacity. In criticizing the New School Bill, and Mr. Crooks' administration of the Education Department, we own to some such feeling of discretion as suggested the order given to the Turkish soldiery, but from the dread—not that the Minister would be replaced by an officer of greater capacity, for Mr. Crooks is well-endowed in that respect,—but that he might be succeeded by a man of much less political discretion and instinctive fairness. It will be understood, therefore, that if we abstain from any sanguinary engagement with the Minister in the arena of criticism, it is from the motives hinted at, and not because we feel altogether satisfied with the hon. gentleman's administration of his office, or that we unreservedly acquiesce in the benefits claimed for a political head of the Education Department with the machinery which the new administration has necessarily, or unnecessarily, called into existence.

It is something, however, to have secured caution and discretion in the conduct of the Education Office, and a conscientious purpose to administer the affairs of the Department on fair, if not broad, lines of political neutrality. We may quarrel a little with the caution, and perhaps infer sometimes that there is more of vacillation than of wise timidity; but

allowance has to be made for perplexing problems of management, as well as for the erratic and often uncontrollable course of occasional experiments. At such times one may sigh for the trenchant and reliant vigour of the Minister's predecessor in office, and for the generally easy faculty of "solving the unsolvable" which characterized the administration of the "Venerable Chief." But Dr. Ryerson, it will be remembered, was absolute dictator in educational matters, and much as he loved the official title, *le Ministre d'Education*, the responsibility to the House and the country, involved in holding Mr. Crooks' portfolio, would not, we fear, have consorted well with the good Doctor's notions of official autocracy.

But recalling to our mind's eye the kind, burly, old incumbent of the office in the days of the Superintendency, the many changes that have taken place since his superannuation come like a series of crashing transformation effects in some realistic play on the stage. The most radical of these changes, of course, was the abolishment of the Council of Public Instruction and its replacement by that Witenagemot, the Central Committee, composed of the *crème de la crème* of the Inspectorate. The wisdom of that experiment of Mr. Crooks we do not wish ungraciously to call in question, but the abrogation of a Council composed of men of the character, ability, and impartiality of the gentlemen who were doing such herculean work for education at the time

of its abolition makes the educational critic severe in his demands upon the men who replaced the Council, and upon the machinery that attempted to continue its work. If we may trust the indications of dissatisfaction with the Central Committee, manifesting themselves on many sides, the Minister is not to be congratulated on the wisdom of that change; but there are other grounds upon which public dissatisfaction with the substituted machinery is also readily comprehensible—not the least of these being the non-representation on the Committee of Public and High School Masters—an element which most fairly and desirably had its representation in the latter days, at any rate, of the old Council,—and the equally practical ground of disapproval of the change, on the score of expense. Not to speak of other mutterings abroad of discontent with the work of the Central Committee, particularly in regard to text-book selections and authorization, the two latter objections we have referred to are of serious moment, the one as it concerns a large body of men whose position and interests entitle them to be consulted on educational affairs along with any favoured men in the Inspectorship; and the other, as it seriously affects the pockets of the people who are already heavily paying for the system upon which the schools are governed. The non-representation of the working branch of the profession, under the new *régime*, would not be a matter open so seriously to objection were it not that there is an evident disposition still further to ignore this element, and to deprive High School Masters, at any rate, of the privileges they have hitherto enjoyed. Section ten of the new School Bill, as originally introduced in the House, illustrates this tendency, and it is a tendency not

calculated to inspire the profession with confidence in the friendly interest and purpose of the Department. Those who fear the intoxicating effect upon High School and Public School Masters, of their possessing a wise degree of discretion and privilege, touching matters in which they are most concerned, should stand for a while in their shoes, in order to recognize the degradation of pursuing the profession as mere machines, while deprived of that best source of inspiration to any high professional accomplishment in a man—a well regulated *amour propre*. But the question of expense, in substituting the Central Committee for the old Council, is no trivial one, as the Public Accounts for 1877, the last financial blue-book issued, indicates. From that volume we gather, that, for the year, the Central Committee cost the country about \$10,000, inclusive of fees as examiners, rewards for reporting upon text and prize books, for travelling expenses, and the inevitable disbursement for contingencies. This is exclusive of the salaries paid to those of the Committee who are Public School Inspectors, by the city or municipal corporations employing them, and it is also exclusive of the salaries drawn by the three High School Inspectors who, no doubt deservedly enough, divide some \$9,000 among them. About \$1,400, it is proper, however, to say, is represented by the celebrated Central Committee Investigation of last winter, a barren expenditure which the dignity and discretion of the Committee, had these virtues been exercised by all of its members alike, would have rendered unnecessary. Still the total chargeable in the public accounts to the eight gentlemen composing the Committee, is a large one; but, of course, the total \$18,000, or so, expended under this head, is relatively a small amount in the aggregate half million

or more which represents the annual vote for Education.

While on the subject of figures, it may not be amiss to say a word or two in regard to other expenditures on educational account which may seem to require the Minister's careful scrutiny, with the view to a possible saving. The amounts which particularly challenge attention are: 1st. the large annual charge for maintaining the Normal and Model Schools of Toronto, and the Normal School at Ottawa, the combined cost of the former being \$26,000, and of the latter, \$14,000, sums which seem unduly large for the limited work these Normal Schools now undertake to do. As we understand it is claimed that the Toronto Model School is almost self-sustaining, in consequence of its large revenue from school fees, the \$40,000 charged in the Public Accounts against these Institutions, would, therefore, seem to be exclusively spent on the two Normal Schools, which, if this view be correct, raises the annual cost per pupil, in these Institutions, to an excessive amount.

The annual outlay, of some \$4,000, on the Educational Museum and Library, is another charge on the Department, in which, we think, a large saving might be effected. The practical educational uses of the Museum we have always considered very slight, though its ornamental attractions are, no doubt, considerable. If the Minister would spend the annual sum in making additions to the Toronto University Museum, or for increasing the equipment of the School of Practical Science, where its disbursement would be of substantial service to technical education, we cannot but think that he would make a better use of the money.

The large sum of \$60,000, and similar amounts annually appropri-

ated, for Libraries, Prizes, and Apparatus, also recurrently challenge criticism, as an unwise expenditure by government, in interfering with legitimate trade, and in violating the fundamental principles of economic science. We should have hesitated to advert in these pages to a subject so provocative of trade and Departmental wrangling as this, did the matter not present itself in the new School Bill with an additional emphasis of hostility towards the Book trade, in the cancellation proposed by the Bill, of the privilege to compete with the Government institution in the supply of Books and Prizes to School Corporations, which the trade has for some years enjoyed. We do not dwell on this matter further than to read in the contemplated provision of sub-section 16a of the Bill, a confession of the Depository's failure successfully to compete with the booksellers, as only this can explain the practical withdrawal of the concession to School Trustees to make their purchases through the Book trade, with the privilege, at the same time, of sharing in the Legislative grant. The withdrawal of the privilege, it may be said, however, is rendered necessary by the depressed state of trade, and the desire, on the part of the Government, to revive the brisk times of the monopoly régime, so that "stocks" may be more rapidly reduced at the Depository, and Government bookselling appear to better advantage. As a device of trade-enterprise, one may commend the proposal, but we should have thought that the lessons of the times would have pointed to measures of economy and reform, which have always been the war-cry of Mr. Crooks's party, rather than to the disregard of both in the maintenance of the institution. If the Minister be nevertheless serious in pursuing economy in the adminis-

tration of his Department, we trust that he will see in this Depository branch an inviting field for, at least, a gradual curtailment of its expenditure, and the final abolition of the bureau as a serious burden on the public purse, and an unnecessary adjunct to the Education Office. To see this matter in its true light, the Minister has only to apply the commercial principle of proportion of cost of management to the gross business annually turned over, adding to the \$8,000 of yearly salaries and contingencies of the Depository, those items of rent, light, fuel, taxes, interest on capital, and allowance for depreciation of stock, which enter into all business undertakings. If this be done, we vouch for it that Mr. Crooks, so far from entertaining the delusion that the Government can advantageously undersell the legitimate trade in this department of commerce, will, at any rate, be ready enough to get rid of his Book Store, and to confine the energies of his department to its proper educational work. We might illustrate the advantage of thus narrowing the operations of the department by referring to the gain to the public purse in leaving to private enterprise the publication of educational periodicals, though, of course, we are not unmindful of the service long rendered by the Government *Journal of Education* at a time when such an enterprise could not be looked for as the product of private speculation or of individual philanthropy. With a similar reservation, we frankly own to the service rendered to the country by the operation, in the early days of its existence, of the Education Depository. But now-a-days the paternal system has no occasion to be carried further than that in which grants and subsidies find their helpful, legitimate field of work; and such educational influences as books and professional magazines exert, and the machinery of

art, science, and general schools supply, may, in the regular form of parliamentary appropriations, be properly made the objects of the beneficence of a liberal and appreciative Government, but without colliding with any interest or concern of trade.

In the foregoing matters upon which we have ventured to express an opinion, we do not, of course, expect the Minister of Education to value our criticism at more than its worth; far less do we hope that he will forego his own prepossessions at our bidding, or at that of any critic of his department. We can only express the hope that the sincerity of our wishes for the efficiency and good repute of the administration of educational matters in the Province, will atone for any temerity of which we may be deemed guilty in the remarks here made. The single motive we have—and we have no other in our present criticism—is to maintain and increase an intelligent and friendly interest, on the part of the public, in the educational affairs of Ontario, and to desire for Mr. Crooks' administration that it shall be precious in the eyes of the profession. The Minister has it in his own hands to secure these desirable results, and he will best do so by wisely balancing, in the administration of his office, the benefits of innovation and experiment against the advantages, so favourably apprehended in everyone's experience, of "letting well alone."

The pertinency of this remark will be the more obvious as we now turn briefly to consider the new School Bill, and to offer some criticism upon its provisions, in so far as the present stage of legislation in regard to it will justify our making the attempt. But as we write, the Bill has been withdrawn for ministerial re-hatching, for which the sterile state of politics in our Local House doubtless affords adequate reason, though, in the meantime, its reconstruction ren-

ders purposeless any serious attempt to consider it as it was first submitted. Whatever transformation it may undergo ere its presentation again to the House, however, there are one or two provisions which we fear are likely to reappear in the Bill,—provisions which we conceive to be so unwise and unnecessary that we feel called upon now to comment briefly upon them. The more objectionable of these provisions is that contained in section 25 of the original Bill, which purposes to place a veto in the power of Municipal Councils, in opposing the demands of Public and High School Boards for school purposes, unless agreed to by a two-thirds' vote of the Council. Now it is difficult in regard to the Bill as a whole, to conceive on what ground of necessity Mr. Crooks asks for legislation on School matters this session. It is more difficult still to understand, in regard to the section we have referred to, why he should propose so unwise a change in the law. "Letting well alone" is a principle of negative excellence which a Government that prides itself upon the negative virtues of Mr. Crooks's colleagues should have well learned. To depart from the principle, however, in the instance before us, and to bring educational affairs more closely within the malign influence of politics, is surely a step which the Minister cannot have well considered. We had credited Mr. Crooks with a high degree of administrative discretion, and were encouraged to hope that he would rigorously have kept school matters at a long arm's length from politics; but it requires no political divining-rod, if not to discern the political influences that have shaped this new provision in the Bill, at least to foresee its evil effect, particularly on High School affairs. If any checks are considered necessary in the local management of these

institutions, it is only reasonable to ask that they shall be such as will repress their creation and limit their number. But once established, their Trustees should surely have full power to make them efficient. Nothing can be more suicidal, to our thinking at any rate, than this clause in the Bill; and we would fain hope that no one wishing well to education, and desirous to preserve it from the ignorant, obstructive, and unsympathetic manipulations of ward politicians, will encourage the Minister's proposal to give such power to Municipal Councils as the clause contemplates. And let not the seeming fairness of the two-thirds vote mislead any one in the matter; for there is a delusive equity in this, and the opening of the door to party machinery to contest the demands of School Boards upon every occasion that might present itself. The claims of School Trustees in regard to this matter, we feel sure, may be safely left to the discretion of those composing the Boards, and we are therefore convinced that the proposed concession to Municipal Councils is irredeemably bad, as any change must be which would bring the two bodies into collision, to the detriment of education, or tend to introduce political strife into the subject of School-rate levies.

In the next section, number 26, of the Bill, there is an element of unfairness in placing the whole expense of the examinations of entrants from the Public into the High Schools, upon High School Boards; but this and other matters in the Bill we have left ourselves no space to dwell upon. Briefly it may be said, however, that, as it is as much to the interest of Public Schools to be relieved of their advanced pupils, so it is, presumably, an object for High Schools to receive them. Hence the question of expense incurred in the examinations, if not

left undisturbed by the Bill, should be settled by the respective Boards sharing the cost between them. There would be equity in the latter course: there is none in that which the Bill now proposes.

Of the other matters in the Bill we can speak with little confidence until it returns in an amended shape before the House. Previously, when under discussion, the provisions which engaged the interest of the members were, as a rule, those of minor moment, and the country, through its representatives, had no opportunity either to influence legislation on the important points of the Bill, or to be made much wiser by the criticism of Parliament. The early sections, on the procedure in electing School Trustees, of course brought on an inevitable debate in regard to the time and manner of elections; but though this gave opportunity for party by-play, on either side of the House, in discussing questions of little political significance and of less educational value, the aid given to practical school legislation was of the most meagre kind. The least pleas-

ing feature of the discussion was the discovery of the uncertain ground upon which the Minister stood in regard to the Ballot and its adoption in both Public and Separate School elections. In this, as in all other matters of school administration, we should like to see Mr. Crooks absolutely free to shape and follow his own course. While uniformly tolerant towards those of another creed whose separate school work demands, and should receive, full recognition and ample support from the Minister, his wise duty, at the same time, is to hold himself scrupulously aloof from sectarian intrigue, and above all, from that worst phase of it which we may call sectarian divisional intrigue. Equally vital is it to the well-being of our educational system that the Minister should close his ears to the siren voice of his own political friends, and, in the administration of his department, continue to walk in that safe, beaten track of honour and honest purpose, which we believe Mr. Crooks seriously endeavours to follow.

ERRATUM.

At the end of the seventh line from the bottom, second column, of page 159, add "not" after the word "do."

TWO SONNETS ON SCIENCE.

I.

THERE was a time when Science, blind and bound
 Like to a miser's handmaid whom rough hands
 Of midnight robbers seize, upon the ground
 Lay prostrate. Eager questionings, commands,
 Torturers' threats, the red alembic's flame,
 Assailed her fortitude ; no fiercer greed
 Was their's who made the Aztec monarch bleed,
 Or sullied for Potosi's ore the fame
 Of brave Pizarro. On her sullen brow
 No sign of blanching fear was seen, her voice
 Stirred not the air, save when in mutt'rings low
 Dark hints she dropped of what she might have told
 Were not their hearts set on so base a choice,
 Had not their quest been narrowed down to gold.

II.

Erect, and with an eye that scorns to droop
 Although the sun full-fronted were opposed,
 Her perfect limbs, that know not how to stoop,
 In stateliest attitude of rest composed,
 She standeth now,—and to her chosen band
 Of followers who, with single hearts and true,
 Have wrought out her behests, as wages due
 She scattereth riches with a lavish hand.
 One man has power to bend the bolt of Jove
 Slave to his errands, yet another sifts
 From worthless nothings, tints that rainbows wove ;—
 Still are these words wrought on her diadem,
 “ Love me for mine own sake, not for my gifts,
 Nor kiss my mantle for its golden hem.”

CONTRIBUTORS' DEPARTMENT.

MR. EDITOR,—Would you kindly answer the following queries.

- (1.) Where is Lithuania?
- (2.) What country or countries do the Samoiedes occupy?
- (3.) Where is the river Ufa?
- (4.) Give the meanings of the following words: Piombi, Pozzi, "Fauces," vast region of *Névé*, Springs and *Fumaroles*.
- (5.) What is meant by the warm *Miocene* times.
- (6.) Who was Munchausen?
- (7.) What is the meaning of *potentialities* in your article in the February number?

I am, yours truly,

JOHN CONNOLLY.

1.—*Lithuania* is that portion of Central Europe forming the N. and N. W. part of the ancient Kingdom of Poland, and now mostly comprised in the Russian territorial administrations of Vitebsk, Vilna, Grodno, and part of Prussia.

2.—The *Samoiedes* Country comprises all the N. E. parts of Russia and N. E. Siberia, between the White Sea and 110° E., with the estuaries of the Petchora, Obi and Yenisei. Keith Johnson says the inhabitants are mostly wandering tribes.

3.—The *Ufa* is a river of European Russia, which, rising in the Ural Mountains, flows S. W., and after a total course of 400 miles joins the Bielaya near the town of Ufa.

4.—Answers to these queries would have been more definite had our correspondent indicated where he had met with the words. *Piombino*? and *Piozzo*? are towns in Italy. *Fauces* means a narrow inlet, but has medical, botanical, and other technical meanings, for which see some large dictionary. *Vast region of Névé*: We do not know whether the *Neva* is meant here, which, though a short

river, is a large one, and drains the great Russian Lakes into the Gulf of Finland. *Fumaroles* are openings in volcanic districts through which smoke and gaseous matter issue.

5.—*Miocene* means, etymologically, less recent, and is a geological term applied to the middle division of the tertiary strata.

6.—*Munchausen* is the fictitious author of a book of travels, containing the most extravagant and mendacious stories. The name is believed to be a corruption of the family title of a German officer in the Russian service.

7.—By *Potentialities* we meant latent powers for good.

We direct our correspondent to the editorial note on School Libraries and Works of Reference, in the present number.

Editor, C. E. M.

MR. EDITOR,—On reading the article entitled "Training and Training Institutions," I was forcibly impressed with the truths inculcated therein, but one especially appeared to me all-important, viz. "The instruction of teachers in training in our Model Schools in the proper method of conducting an ordinary rural school with one teacher." I, therefore, request some of your readers to insert in your valuable Monthly, a thorough practical "Time-table" for such a school, with an average attendance of fifty pupils, and consisting of five different forms, as I find it very difficult to construct one containing all the subjects so as to make the necessary progress which is looked for at the "semi-annual examinations." Knowing the importance of this great *desideratum*, and that a practical one will be *pro bono publico*, I request the insertion of the above.

I am, yours truly,

Goderich, Feb. 22, 1879. CHAMPETRE.

MR. EDITOR,—If I have just passed the Intermediate Examination can I pass the examinations next July for a first-class certificate? Am I forced to attend one of the Normal Schools in order to be eligible as a candidate for a first?

Yours, etc.,

M.

The regulations on this point are quite explicit, and are as follows :—

A candidate for the non-professional examination prescribed for first and second-class certificates respectively, may present himself at any time when an examination is being held; but no certificate of any class will be granted until all the conditions indicated have been satisfied.

The conditions upon which first-class certificates are to be granted are as follows :—

(1.) In order to be qualified to receive a first-class certificate, the candidate must have passed the prescribed non-professional examination for first-class certificates.

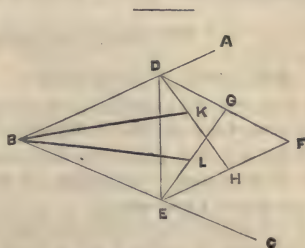
(2.) He must also have attended for one year at a Provincial Normal School, after obtaining a second-class certificate, and must pass an examination on the work of the session, together with any other subjects connected with the practice of teaching which the Minister may appoint.

(a) Before being admitted to this examination, the candidate must receive a certificate from the Principal of the Normal School that he has, throughout the session, paid satisfactory attention to his duties, and that he is, in the opinion of the Principal, a fit person to be allowed to go up to the examination.

(b) Any persons who have taught successfully for two years on a second-class certificate, and have passed such examination as the Minister may prescribe, to test their fitness to teach on a first-class certificate, are exempted from attendance at the Normal School.

He must produce evidence that he is of good character.

From this it will be seen, that attendance at the Normal School, although advisable, is not obligatory; nor is it necessary for a candidate to have taught a school before passing the non-professional examination prescribed for a first-class certificate.—ED.



TO TRISECT A GIVEN ANGLE.

Let ABC be the given angle.

Mark off equal spaces BD, BE. Join DE, and on it describe the equilateral triangle, EDF. Bisect DF, EF in G and H. Join HD and GE. Make HK = HF and GL = GF. Join BK and BL.

The angle ABC is trisected by the lines BK and BL.

Prove that the above construction is wrong, or demonstrate its correctness.

G. S. MITCHELL,

Brockville.

Owing to want of space, the Solutions to the Problems appearing last month, from Mr. W. J. Robertson, though received, will have to be deferred publication until our next issue. We have to acknowledge Solutions for the same problems from Mr. Francis, Collingwood.

Correspondents sending us problems or solutions, should take care that they are clearly and legibly written, and on one side of the paper only.

ARTS DEPARTMENT.

EXAMINATION PAPERS OF LONDON UNIVERSITY, JANUARY, 1879.

[NOTE.—We print this month part of the Matriculation Examination Papers, set at the University of London in January last.—ARCH'D. MACMURCHY, MATH. ED. C. E. M.]

The Students were allowed three hours for each Division.

ENGLISH LANGUAGE.

[Not more than *ten* questions to be attempted, inclusive of the exercise in dictation.]

1. Write out and punctuate the passage read by the Examiner. Underline the words which are *not* of Latin origin.

(N.B.—Candidates are reminded that they are not allowed to make a fair copy of the exercise in dictation.)

2. Show the position of English among allied languages. What consonantal changes have been observed to prevail between cognate words in English and any other of these languages?

3. What is a vowel? What vowel sounds exist in English? Show particularly how they are all expressed by means of the six Roman vowels.

4. From what languages, and at what dates, have we received the following words?—*Orange, receive, street, bosh, boom, chintz, kiln, fetish, die, armadillo, concatenation, chess, chagrin, pool, carouse.*

5. Discuss and illustrate all methods of distinguishing number in English nouns. How has the use of the suffix *s* as a sign of plurality been accounted for?

6. Account for the letters in Italic, in name, these, those, passenger, sovereign, wettest, cities, potatoes, sceptre, sceptic, handiwork, righteous, tom*b*, could, our.

7. What cases had nouns formerly in English? Which of them still formally exist? Of how many of them can the force still be expressed by the simple form of the word without a preposition? Give full examples.

8. What was the ancient form of the feminine gender? What traces remain of it? How has it been supplanted? Discuss the meaning and origin of the termination *-ster*.

9. Classify adjectives irregularly compared. Give the positive and superlative of *more, farther, former, utter, hinder, less, rather, further, latter, nearer*, and also what you know of the history of each.

10. Explain the construction of *self*. What part of speech is it? Trace its history.

11. What are weak verbs? Classify *bring, sing, take, seek, teach, set, bleed, eat*, as weak or strong verbs. Give reasons in each case, and call attention to peculiarities.

12. What part is taken by the verb *have* in conjugating English verbs? Explain the process by which *have* came to be so used, and discuss the following:—*I have a letter; I have written a letter; I have come to post it; the post is gone.*

13. What are the different uses of the verb *to be*? From how many verbs are the parts of this verb formed?

14. Classify adverbs (*a*) as to the ideas they express, (*b*) as to their origin.

15. What are verbal prepositions? Give six examples, and show how they come to be used prepositionally.

16. Correct or justify the following expressions:—

(a) I am verily a man who am a Jew.

(b) Too great a variety of studies distract the mind.

(c) Who do you speak to?

(d) The river has overflown its banks.

(e) Man never is but always to be blest.

(f) Neither our virtues or our vices are all our own.

(g) That's him.

(h) Many a day.

(i) I expected to have found him better.

(k) I am to blame.

ENGLISH HISTORY AND MODERN GEOGRAPHY.

HISTORY.

[Not more than *eight* of these fourteen questions are to be answered.]

1. Mention the more important Anglo-Saxon Kings from Egbert to Edward the Confessor, assigning the exact or approximate dates to each.

2. What were the difficulties William I. had to encounter before the Conquest of England was completed?

3. State briefly the relations of the Norman Kings with the Church, and their results on the sovereign and ecclesiastical power.

4. Sketch briefly the Reforms introduced into the Administration of Justice by Henry II.

5. Describe the circumstances under which Magna Charta was obtained. Mention the personages who were most prominent in demanding it from the King.

6. What were the Legislative Improvements introduced by Edward I.?

7. Give the particulars of Jack Cade's Insurrection, and compare it with that of Wat Tyler.

8. Give a list of the Tudor sovereigns with the dates of their accession.

9. What is meant by the Royal Supremacy? How was it developed under the Tudors? How was their policy in this respect favoured by the peculiar circumstances of the times?

10. By what right did James I. ascend the throne of England? Who were his chief supporters? Who opposed his accession? Give a brief account of his personal history before the death of Elizabeth.

11. Through what causes was the influence of Parliament developed in his reign and that of his successor?

12. What was the object of the Solemn League and Covenant? By whom was it introduced, and with what results?

13. Mention the parties, civil and religious, into which this nation was divided during the Civil Wars, and their more eminent leaders;

showing in what points they differed from each other.

14. How were the great questions by which this nation was agitated during the Stuart reigns settled at the accession of William and Mary?

GEOGRAPHY.

[Two of these questions *must* be answered, but not more than two.]

1. A native of Lancashire intends to settle in Chicago (Illinois). Describe his route from the point he sets out from to the place of his arrival.

2. Describe exactly the relative positions of these places:—Surat, Benares, Allahabad, Delhi, Mooltan, and Lahore.

3. Draw a map of Turkey in Asia, west of an imaginary line passing from Aleppo to Sinope.

4. Describe the course of the following rivers:—The Rhine, the Danube, and the Rhone; mentioning the chief towns situated on the banks of each river.

ARITHMETIC AND ALGEBRA.

[The candidates are requested to send up the *work*, as well as the result, with every question they answer.]

1. From the sum of the ordinary fractions, $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$, subtract the sum of the ordinary fractions $\frac{1}{6}, \frac{1}{7}, \frac{1}{8}, \frac{1}{9}$, and exhibit the result as an ordinary fraction in its lowest denomination.

2. From the sum of the repeating decimals $\cdot\overline{1234}$ and $\cdot\overline{1234}$ subtract twice the repeating decimal $\cdot\overline{1234}$; and exhibit the result in the form of a decimal of similar character.

3. The first and last terms of an arithmetical progression are 1 and 6561, and the number of terms is 9; determine completely the progression.

4. The first and last terms of a geometrical progression are 1 and 6561, and the number of terms is 9; determine completely the progression.

5. Find the numerical value of the algebraical expressions $(x^3+y^3)+3xy(x+y)$ and $(x^3-y^3)-3xy(x-y)$, when x and y have the numerical values 5.5 and 4.5, respectively.

6. Show by any method that the algebraical expression

$$(cy-bz)^2 + (az-cx)^2 + (bx-ay)^2 + (ax+by+cz)^2$$

is divisible by $(x^2+y^2+z^2)$; and determine the quotient.

7. Show by any method that the algebraical expression

$$(x^2-yz)^2 + (y^2-zx)^2 + (z^2-xy)^2 - 3(x^2-yz)(y^2-zx)(z^2-xy)$$

is a perfect square; and determine its root.

8. Extract the square root of the algebraical progression $1+2x+3x^2+4x^3+\&c.$, to infinity, where x is a number less than unity, by the ordinary process, or by any other you may consider more convenient.

9. Find the numerical values of x, y, z , which satisfy at once the three algebraical equations $2y+3z-4x=25$, $2z+3x-4y=17$, $2x+3y-4z=12$.

10. Divide £66 7s. 6d. between 6 men, 7 women, 8 boys and 9 girls; giving each woman a fifth, each boy a fourth, and each girl a third, less than the share of each man.

11. A grocer, having mixed four kinds of tea, in the proportions of 3, 4, 5, 6 parts by weight, and at the prices of 3s. 2s. 6d., 2s., 1s. 6d. per lb. respectively, retails the mixture to his customers at x shillings per lb.; required the value of x that he should realize 25 per cent. on his outlay.

12. A mixed train of 700 passengers being supposed to realize to its proprietors the sum of £112 10s. as the gross proceeds of an excursion; assuming the class fares to be in the ordinary proportions of 4, 3, 2, and the corresponding receipts to be in the inverse proportions of 2, 3, 4 determine the number of passengers, and the fare for each class.

GEOMETRY.

[Candidates are requested to state the text-books on geometry which they have read for this examination. They are permitted to use all intelligible abbreviations in writing out their answers.]

1. Prove that in every isosceles triangle the bisector of the angle between the equal sides bisects the third side and is perpendicular to it.

2. Prove that a triangle is isosceles if the bisector of any angle is perpendicular to the opposite side.

3. Two of the angles in a triangle which is not given are known to be equal to two given acute angles. Show how to make with a given straight line an angle which shall be equal to the third angle in the triangle.

4. Prove that the sum of all the exterior angles of a Polygon of the ordinary form equals four right angles.

5. Assuming the truth of the proposition in the last question, prove that no Polygon of the ordinary form can have more than three of its exterior angles obtuse or more than three of its interior angles acute.

6. Construct a parallelogram which has two adjacent sides and the diagonal through their point of intersection equal to three given straight lines of finite lengths.

7. Prove that in any right angled triangle the rectangle between the hypotenuse and either part into which it is divided by the perpendicular from the right angle is equal in area to the square on the side adjacent to that part.

8. If a straight line be divided into two unequal parts, show by a diagram that half the sum of the squares of these parts is equal to the square on half the sum of the parts, together with the square on half their difference.

9. Prove that the two straight lines which join, either directly or transversely, the ends of two parallel chords of a circle are equal to one another.

10. If two circles touch at a single point, shew that the straight line (produced if necessary) which joins their centres passes through the point of contact.

NATURAL PHILOSOPHY.

[Not more than eight questions are to be answered.]

1. Define Stable, Unstable, and Neutral Equilibrium, and state the conditions of stability of a body resting on a horizontal plane.

2. A telescope consists of three tubes, each 10 inches in length, sliding within one

another, and their weights are 8, 7, and 6 ounces. Find the position of the centre of gravity, when the tubes are drawn out to their full length.

3. State the condition in order that three or more forces acting on a bar which is free to turn about a fixed axis may not produce motion about that axis.

A uniform bar, 2 feet long, and weighing 3 lbs. is used as a steelyard, being supported at a point 4 inches from one end. Find the greatest weight which can be weighed with a movable weight of 2 lbs., and find the point from which the graduations should be measured.

4. Show, by the aid of a sketch exhibiting the resolution of forces, *how* a ship can sail at right angles to the direction of the wind.

5. A stone dropped into a well reaches the water with a velocity of 80 feet per second, and the sound of its striking the water is heard $2\frac{7}{13}$ seconds after it is let fall. Find from these data the velocity of sound in air. [$g=32$.]

6. A mass of 6 ozs. slides down a smooth inclined plane whose height is half its length and draws another mass from rest, over a distance of 3 feet in 5 seconds, along a horizontal table which is level with the top of the plane, the string passing over the top of the plane. Find the mass on the table.

7. The resultant vertical pressure of a fluid on the surface of a body immersed in it is equal to the weight of fluid displaced by the body. How is this proved by experiment?

8. A vessel shaped like a portion of a cone is filled with water. It is one inch in diameter at the top and eight inches at the bottom, and is twelve inches high. Find the pressure (in pounds per square inch) at the centre of the base, and also the whole pressure on the base. [A cubic foot of water weighs 1,000 ounces.]

9. How would you show that atmospheric air is heavy, like solid and liquid bodies ;

and how would you find the exact weight of any volume of it?

10. Explain the action of the siphon. What are the conditions in order that it may work properly?

If the shorter arm of a siphon for emptying a vessel of water be 32 feet long, and a bubble of air occupy 6 inches of the tube at the end where the water enters, find the changes which the bubble of air undergoes while the process of emptying goes on.

11. State, and show how to prove, the Law of Refraction by plane surfaces.

12. An arrow, pointing towards the observer, is seen by internal reflection in an isosceles right-angled prism. Explain the difference in, and give a sketch of, the images seen according as the prism is three-sided, or a four-sided Wollaston prism.

13. Explain the formation of images by a concave cylindrical mirror. Find the relation between the distances of the two conjugate foci from the mirror. What is the position of the image of a point which is at the distance of the diameter from the reflecting surface of the cylinder?

14. What is meant by the real expansion and what by the apparent expansion of a liquid? Explain how to determine the apparent expansion of mercury.

15. State fully what information we gain from the statement that the specific heat of copper is 0.095, and that the latent heat of water is 80? What is the connection between the specific heat of a body and the rate at which it cools in a chamber which is kept at 0°C.?

16. Distinguish between a gas and a vapour. Is Boyle's Law obeyed by a vapour?

A vessel contains 2 cubic inches of water and 50 cubic inches of steam at 100°C. and at atmospheric pressure. What change will take place in the pressure when the volume of steam is diminished to 25 cubic inches, without any change of temperature?

TEACHERS' ASSOCIATIONS.

TEACHERS' CONVENTION, NORTHUMBERLAND.—The association for this county met on the 27th ult., in Cobourg, and continued in session two days, a large number of teachers being present, representing all parts of the county. The first session was merely routine. The second was opened by the address of the President, Mr. D. I. Johnston, who, with his well known ability, dealt with the general object of teaching. A discussion on "Language Lessons" followed, introduced by Mr. Parker, who, in a very lucid manner, showed his method of dealing with this important subject. His system was substantially that of Swinton, now so generally adopted. He was followed by Inspector Scarlett, Mr. Sprague, Principal of the Model School, Messrs France, Ash, and by the Rev. Dr. Nelles, President of Victoria University, all of whom agreed as to the superiority of the system, as compared with that formerly in vogue. "Object Teaching" was introduced by a paper on the subject from Mr. Sprague, H. M. Model School, who dwelt mainly on the importance of the means of cultivating the perceptive faculties, giving, moreover, some practical suggestions as to the mode of teaching. He was followed by Mr. D. C. McHenry, M. A., Principal of Cobourg Collegiate Institute, who briefly referred to the general principles which underlie the subject of object teaching, showing, also, the close similarity between accepted methods of teaching by sensible objects and the modes now adopted of teaching language lessons. Good suggestions followed from Messrs. Dowler, France, McArthur, Slater, and Beatty.

At this stage of the Convention, President Nelles, Dr. Burwash, and Professors Wilson, Reyner, and Bain were elected honorary members of the Association. The evening was given to an elocutionary treat furnished

by Mrs. Taverner Graham. On Friday morning the subject of "Examinations" was taken up, introduced by Inspector Scarlett, and "Factoring" by Mr. Sprague. At 2 o'clock Dr. Nelles addressed the Association, dwelling mainly on the *interdependence* which subsists between the various departments of our educational work, the Public School, the High School, and the University.* He also referred to the various *methods* of instruction, the *inadequacy* of the teacher's *remuneration*, and the *nature* of the teacher's *work*, its relation to religious progress, to the state, and its *imperishable character*. The eloquent speaker was in one of his happiest moods, and his highly instructive address was received with frequent applause. Mr. J. M. Buchan, M. A., High School Inspector, then gave a very valuable address on "English Grammar and Literature." As was expected, a rare treat was afforded the Association. His excellent remarks were most cordially received. A few remarks from Messrs. McHenry, Scarlett, and Sprague, closed the consideration of this topic. Mr. Robinson of Belleville, then gave some valuable hints on the subject of penmanship. In the evening, Mr. Buchan delivered, to a highly appreciative audience, his excellent lecture on "Poetry and Politics."

The Association, before separating, passed a resolution appointing the Inspector and the President a Committee to secure as far as possible the general introduction throughout the county of the "CANADA EDUCATIONAL MONTHLY." Several of the members testified to the high merits of the journal, which was generally admitted as probably the best periodical of the kind on the continent, and in every way worthy of support. The next meeting will be held in Campbellford.

* This address, we have the pleasure to announce, will appear in our next issue, Principal Nelles having kindly consented to its publication.—ED.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

[NOTE.—Under this Department it is intended to reproduce occasional extracts from the writings and speeches of contemporary statesmen, professional men, and publicists, on the subject of Education and literary and professional topics, which may seem noteworthy, and our space will enable us to preserve in the pages of THE MONTHLY.—EDITOR C.E.M.]

THE RIGHT HON. ROBT. LOWE, M.P., ON MODERN *VERSUS* CLAS- SICAL LANGUAGES.

Another thing to caution you against is, spending your time in reading metaphysics of any kind whatever. (Laughter.) I have wasted time in that way myself, and I think it is the greatest waste of time. It begins by assuming something that is not true, and ends by landing you in something actually absurd. I have spoken highly of our own literature, and I am bound to say that a person acquainted with that of England—which is the noblest, in my opinion, in the world—has in his mind a great store of thoughts and images, and has done a great deal towards giving effect to those faculties which have been bestowed on him. But there is a further question—knowledge of foreign languages. People are differently gifted in that respect, but if a man has a faculty for learning languages without difficulty, nothing will probably be more improving to his mind, or will conduce more to his prosperity, than the study of foreign languages, especially of the French language, one of the most beautiful vehicles of thought. It is so clear and lucid that all mankind agree with acclamation, when they communicate with each other, to speak it in preference to all others, because it is so much clearer and easier. It has a magnificent literature in every department; and as for the elucidation of science, I suppose that nowhere does science speak so clearly, beautifully, and plainly, as in the noble and splendid language of France. (Cheers.) It is not a very difficult thing to acquire it if

you have time or a little money. I would not advise you to depend on masters to teach you, but if you can afford the means of doing so, go into the country and learn it, not as a dead, but as a living thing, so as to enable you not only to enjoy its literature, but to understand and communicate with its people. That is a most enormous advantage; the good it does to acquire that, as a mere matter of advancement in life, it is impossible to exaggerate. The man who is furnished with a knowledge of the French and German languages has a means of raising himself in the world such as can hardly be conceived. I will give you an instance. There is a gentleman now who is at the head of the finances of Egypt—Mr. Rivers Wilson. Mr. Wilson was brought into the Treasury. He has made his own way in the world. I remember Lord Palmerston speaking with great admiration of the knowledge he had of French, and of the admirable examination he had passed. He is an accomplished financier, but there are a great many accomplished financiers in England—(laughter and cheers)—and he, holding high office under the Government as he was, has been selected from among all these financiers for the purpose of administering the finances of Egypt, not because there could not have been found other men quite as able as he to administer these finances, but because in addition to that financial ability he had this admirable quality, that he could speak the French and German languages just as easily as he could speak English. If it had not been for that I have no doubt there would never have been a

thought of moving him from the excellent position he held in England. I am told I am a fanatic in this matter, and am perfectly misleading people when I urge them to spend their leisure time in learning these languages. I am told it is not to the living languages you should look, but to the dead; that when Solomon said a living dog was better than a dead lion, Solomon knew nothing about it, and that a dead lion is much better than a living dog. (Laughter.) That is not my judgment on the matter. I do not believe that by teaching a man to know the languages which have long since ceased to be spoken, and which are the depositories of lore very curious and beautiful, but no longer of practical application—I do not believe that by turning a man's mind to these subjects, and turning them away from the subjects of the present day, you are doing the wisest thing that can be done for him. I have been told, however, by a friend of mine, who is a competent person to judge, for he is an excellent scholar and also a very good linguist, that there is a certain intellectual gymnastic, as he calls it, or cultivation, in the learning of the dead languages which makes them infinitely superior to the living ones, so that in the case of a man who has learned these dead languages his mind is able to control itself, which certainly is an extraordinary thing. (A laugh). If it is meant that learning a language is merely an exercise to brighten up one's faculties and to sharpen one up to enable one to do things, it is to me incomprehensible why we should take the dead languages for the purpose; because, if it is to be a mere intellectual gymnastic, the thing would be to take the hardest language we can find; and though Greek and Latin are very hard, I can find some things a great deal harder. Take for instance, the Sanscrit language. Here are eight cases to every noun, and three numbers; every verb has seven voices and ten tenses. (Laughter). If you want gymnastics, there you have them. Take another case, that of Russia. I won't attempt to go into that—(laughter)—but Mr. Wallace seems to me to have proved that you want a separate grammar for every word in the Russian language. (Laughter). But

there is another language that beats them all, the Chinese. It is of this admirable nature that there are about 30,000 words, and that every word has a separate character to represent it. Think what an intellectual gymnastic it must be, first to remember 20,000 or 30,000 words, and then to remember the letter to represent each word. (Laughter). As to dead languages, I scorn the idea; let us go to Chinese at once. (Laughter). That only shows the absurdity to which people may be led by association of ideas. In old times—I hope people are getting wiser now—we were taught to learn a quantity of Latin by heart. We did not learn it, and were flogged; we learned a little, and were flogged again; and then we learned a little more, and so we went on until by degrees we hammered through these things. People say youth is the golden time of life. It is not only golden itself, but it gilds other things. Those things most disagreeable and painful when we had to endure them, and least profitable since, when we look back on them—to the time when we were young, happy, and jolly—we think they must have been charming too. So people get an inveterate prejudice for these dead languages as against living ones, and having got this into their heads, they say it is an intellectual gymnastic to learn them. I venture to offer to you, therefore, this—that you are not to make yourselves unhappy if you do not know anything about Greek and Latin. You can get on very well without them; and, though when first taught they were an indispensable matter of education, you may now employ your time much better, even if you have a taste for languages, than in that way. In conclusion, the right hon. gentlemen urged his young hearers not to be disheartened by difficulties, but to remember Bruce's spider, and try again.

THE MARQUIS OF HARTINGTON AT EDINBURGH UNIVERSITY.

What, then, is the University doing for you, and what use are you making of the advantages which the University offers? It is my business to address myself rather to the students than to the authorities; and I shall not plunge

into the controversies between the old and new schools of University education. But as one who has a right to a voice on the Council of your University I will say this, that that seems to me to be a rational view of the functions of Universities which insists that they should move not only with but in advance of the times. Universities are maintained not only to teach what has already been discovered, but to aid in the search after new truths; not only to teach some one or two kinds of knowledge, but to put young men in the way of learning all that is to be known. They are maintained for the purpose of equipping young men for their different journeys through life with that knowledge of how to acquire knowledge which is indispensable to every one of active mind. Their business is not to drive away to other teachers those desirous of acquiring that information which is wanted for the practical work of daily life, but to impart it more fully and on a broader basis than teachers of mere detail can offer. We hear complaints, on the one hand, that Universities fail to give the education which is best adapted for modern requirements; and on the other, that they are sinking to the lower level of professional schools. But can they exercise higher functions than those of professional schools in the best sense? It is the province of Universities to offer the best professional and public education, and that is certainly not one that is either restricted to the sum of human knowledge as ascertained two hundred or fifty years ago, or one which is limited to the newly-acquired results, however important, of modern research. If I have digressed from the subject to which I was specially drawing your attention, it is because, in my opinion, the education or rather the groundwork of the education, which will fit you for eminence in a professional career is that which will also enable you to discharge that political service to the State which is your duty and your inheritance. Those studies which form and strengthen the judgment, which cultivate and discipline the imagination, which train the mind to think correctly and concentrate its energy, which, in short, develop the moral and intellectual qualities according to a scientific or philoso-

phical method, while they form the best foundation for the struggles of every day life, are equally adapted for the proper exercise of the political influence, both direct and indirect, of a good citizen.

MR. FREDERIC HARRISON ON BOOKS.

An evening lecture at the London Institution was recently delivered by Mr. Frederic Harrison, his subject being "The Misuse of Books." There were, he said, many ways of abusing books, but not many would follow the example of a college tutor he had known, whose life-passion was the buying and reading of books; but who always threw the leaves, as he read them, into the fire, as either worthless or already printed on his memory. The hoarding up of rare books of which we made little or no use was a more common foible; but the worst misuse of the art of reading he knew of, and at the same time the most widely spread, was the waste of time and attention upon utterly trivial productions, while leaving unread or forgotten the greatest and best books ever written. Even scholars indulged too much in promiscuous reading, although the longest life and the greatest industry would not enable a man to master a hundredth part of the books really worth reading. The great thing to know was what kind of reading to avoid. We should be as much on our guard against a chance book as against a chance companion. The enormous multiplication of books in the present day was not wholly favorable to mental growth, and for the last 300 years it had never been harder than now to select the right books to read. He argued at considerable length on the absolute necessity of confining our ordinary reading to the very best authors, whose books, he complained, were sadly neglected in these days. He endorsed in general a proposal which had been put forth for the guidance of the more thoughtful in the choice of books for constant use, not dwelling on the theory of education underlying it, but simply specifying the method on which it was framed. The authors comprised would not number more than between 100 and 200;

representing poetry, history, science, and religion. The first thing was to attempt to get together what was best in all the great departments of human thought, so that no part of culture might be wholly neglected or wanting. The next was to gather into one collection the greatest and best books in each department, and such only. Thirdly, the test of the value of the books to be what they say, not the manner of saying it. Save in the highest kinds of poetry, grace of form should not count. Lastly, the verdict to be given

by the common voice of mankind. Mr. Harrison added that as to the best hundred books or so, the world had long been pretty well agreed. He had provided himself with some such catalogue twenty years ago—of course, not as a bar to other reading. Such a list would serve to check indiscriminate wandering in the pathless fields of literature, and tend to remind us daily how many are the books of inimitable beauty and glory which we never even have taken into our hands.

“If then, in the future, we would fit men properly to cultivate nature, and not leave scientific research, as to a great extent we have done, to the hazard of chance, we must cultivate her own processes. Our earliest teachings must be things and not words. The objects first presented to the tender mind must be such as to address the senses, and such as it can grasp.”—F. A. P. BARNARD, *Pres. of Columbia College*.

“Education is, in this respect, narrower than it was three centuries ago. * * * * Of the large number of men who have little aptitude or taste for literature, there are many who have an aptitude for science, which deals not with abstractions but with external and sensible objects; how many such there are, can never be known as long as the only education given at schools is purely literary.”—*Report of English Schools' Commission—1861*.

“We think that it is established that the study of natural science develops, better than any other studies, the observing faculties, disciplines the intellect by teaching induction as well as deduction * * * and provides much instruction of great value for the occu-

pations of after life.—*English Commission on Endowed Schools—1868*.

“Nature does not allow us for a moment to doubt that we have to do with a rigid chain of cause and effect, admitting of no exceptions. Therefore, to us, as her students, goes forth the mandate to labour on till we have discovered unvarying laws; till then we dare not rest satisfied, for then only can our knowledge grapple victoriously with time and space, and the forces of the universe. * * Though I have maintained that it is in the physical sciences * * that the solution of scientific problems has been most successfully achieved, you will not, I trust, imagine that I wish to depreciate other studies in comparison with them. * * I do think our age has learnt many lessons from the physical sciences. The absolute unconditional reverence for facts,—and the fidelity with which they are collected,—a certain distrustfulness of appearances,—the effort to detect in all cases relations of cause and effect,—and the tendency to assume their existence—which distinguishes our century from preceding ones, seem to me to be such an influence.”—*Helmholtz*.

CONTEMPORARY LITERATURE.

THE SIX CHIEF LIVES FROM JOHNSON'S "LIVES OF THE POETS."—Edited, with a preface, by Matthew Arnold. London, Macmillan & Co.; Toronto, Willing & Williamson.

In these days of flippant magazine-utterances, the work of authors who pride themselves on being able to write pleasantly about nothing at all, it is a relief to get back to a substantial piece of criticism such as is afforded in the book before us. When the subject matter concerns six of the best of our later English poets, when the author and critic is Samuel Johnson, and when the editor is Matthew Arnold, we may safely look forward to a work masculine alike in the grasp shown by its conception and in the power displayed in its execution.

The preface, in which alone Mr. Arnold's personality is visible (for he has intentionally avoided any encumbering of his author's text with notes) well deserves study for the opportunity it affords us of learning the editor's views on education. To Mr. Arnold's mind, modern teaching errs in excess of detail, in the undue multiplication and subdivision of the subjects taught, and by the ever varying methods of imparting knowledge which are being constantly forced upon us by educational-nostrum-mongers, compassing sea and land to make one proselyte. Accordingly Mr. Arnold suggests a simpler and a more solid process, by which he conceives the ideal line of study could be approached closer than it has been as yet. Taking the field of literature, he conceives the course of tuition commenced by a "very brief introductory sketch of the subject," followed by a series of important works, *points de repère*, as he calls them, books selected for their monumental importance, and which will serve as the "natural centres" or governing points of

whole groups of literary works. Round these representative books, which he would have the student master thoroughly, he would cluster all the secondary minor or contemporary literature which can be considered as affiliated to them, such works of derivative importance to be read more cursorily and with constant recurrence to the keystone of the position in order to solve, by the aid of the principles we have deduced from its study, those embarrassing questions which are continually occurring in the course of a student's first enquiries in literature.

Such a *point de repère*, Mr. Arnold tells us, for the study of the early English schools of biography and criticism, he has always detected in Johnson's Lives; and, having reduced the work to manageable dimensions by selecting from it the six best authors treated of, he now presents it to students as an invaluable guide and text book. There can be no doubt that it is all that Mr. Arnold claims for it; but, while welcoming it as a useful help to the study of a particularly interesting period, we must not fall into the error of extending its sphere of usefulness too far. Clearly we are now in a new era of biography and criticism, for the due comprehension of which some other central focus must be discovered. The influence exerted by German thought, through Carlyle and others, on biography, the influence of Ruskin's marvellously beautiful writings upon criticism, have been disturbing forces which, while not superseding the necessity for our understanding the earlier phases of this class of literature, still render it imperative for us to recognize that the example of Johnson is no longer a predominant element in determining the form, the method, or the manner of modern biographical or critical literature.

Considerable attention has been called of late to Dr. Johnson as a writer, and his fame in that department has been vindicated against the charges of undue prolixity and redundant verbosity which have been hurled at him by men whose style was often quite as much tainted with foreign words as was that of Johnson while it seldom attained or even approached his clearness or precision. A writer in the *Contemporary Review* (1) has recently sought to rescue Johnson's fame and place it upon a more noble pedestal than it occupies among the endless and garrulous details of Boswell. Whether he is wise or not in so doing we will not venture to pronounce.

It may be urged with much force, however, that Dr. Johnson's writings are not of a sufficiently high character to ensure him immortality, whilst the very littleness and pettiness which we meet with on every page of Boswell endear both him and his hero to every reader who, consciously or unconsciously, feels a similar sneaking regard for the really great at the bottom of his own heart. Such readers there will always be. It is of no avail to say that Boswell might have worshipped the great Doctor in a more manly fashion and after a more laudable ritual. To have done so he would first have had to have ceased to be Boswell. It is to his eternal credit that, being a born toady, he yet had that spark of divine appreciation which induced him to lick the shoes of a poor but noble-minded man rather than to do dirty jobs for Lord Tomnoddy or flatter a minister for the reversion of some sinecure in the Customs.

Every whipper-snapper now-a-days can place his finger on those points in which Johnson's criticisms were defective. He was a Tory and bore heavily on some of Milton's poetry in revenge for Milton's politics. He was as conservative in matters of verse structure as in his adherence to the doctrine of divine right; and because he could not catch the harmony of Lycidas, he calls its "diction harsh, its rhymes uncertain, and its numbers displeasing." Ears comparatively

unaccustomed to the unvarying swing and monotonous cadence of the ever-recurring rhyme in the heroic line of Pope, do not find it difficult to catch the more widely scattered and irregular rhyme of Lycidas and plume themselves upon their superiority. But all this is to no purpose. We must remember before condemning Johnson that it is from him that we have learned the elements of our craft. His criticisms have directed hundreds of able writers in the field of literature, his opinions have, as it were, saturated all thought of the Georgian era, and have served as guides to many who have forgotten that their master had no guide himself. With the exception of Dryden's Prefaces, and the writings of Addison, Johnson broke untouched ground when he approached our poets and sought to discriminate their faults from their beauties. That his verdict should occasionally be reversed by posterity was to be expected, the ground for surprise is that it has been followed in so many and in such important particulars.

We have to notice a mistake in the date of Gray's birth, which is given as 25th November instead of December, 1716; this life is in fact the shortest and least satisfactory of them all. On page 427 there is a good specimen of the Irish bull: "they sought for everything in Homer, where, indeed, *there is but little which they might not find.*"

No better example of the weakness of Johnson can be pointed out than his remarks on our ballad poetry, especially on "Chevy Chase." "In Chevy Chase," he says, "there is not much of either bombast or affectation; but there is chill and lifeless imbecility. The story cannot possibly be told in a manner that shall make less impression on the mind."

At the risk of being blamed for using a hackneyed quotation we will place beside this the remarks of Sir Philip Sydney on the same ballad.(2) "Certainly, I must confesse my own barbarousness, I neuer heard the olde song of *Percy and Douglas*, that I found not my heart mooued more than with a trumpet, and yet it is sung but by some

(1) William Cyphes—"Johnson without Boswell."

(2) Apologie for poetrie.

blinde Crcuder, with no rougher voyce, than rude stile ; which being so euill apparrellled in the dust and cobwebbes of that unciuill age, what would it worke trymmed in the gorgeous eloquence of Pindar?"

The present age has come round to Sir Philip's view,—with this exception, that what he failed to understand, that the very blunt directness and lack of style shown in the ballad are the most powerful reasons for its stirring us as with a trumpet, and that the "gorgeous eloquence of Pindar," might add to its beauty but could not do otherwise than detract from its force. Still we are at one with him on the main point. It stirred his blood, and it stirs ours ; but on Johnson's ears it fell dull and chill. Are we to congratulate ourselves on our superiorsensibility? Let us remember that not to Johnson alone but to all his contemporaries the ballad appeared in vain, and let us hesitate before we ascribe to ourselves all round greater sensibility than was given to Pope, to Dryden, and to Johnson.

LITERATURE PRIMERS.—*Homer*, Rt. Hon. W. E. Gladstone ; *Greek Literature*, R. C. Jebb, M.A. ; *Shakspeare*, Edward Dowden, LL D. London : Macmillan & Co.—*English Literature*, Stopford R. Brooke, M.A. Toronto : James Campbell & Son.—*Philology*, John Peile, M.A. Macmillan & Co.—*English Grammar*, Dr. R. Morris ; *English Grammar and Exercises*, Dr. R. Morris & R. C. Bowen, M.A. James Campbell & Son.—*English Composition*, Prof. John Nichol, LL.D., Macmillan & Co.

Resuming our survey of this interesting series of Primers, we find that Mr. Green's enterprise has presented us, for our consideration this month, with a work on Homer, by no less distinguished a man than Mr. Gladstone. The old poet formed a link of union between the Liberal leader and his departed antagonist, the Earl of Derby ; but we doubt, although there can be no question but that the Peer had a deep interest in the Iliad, whether the famous Tory debater carried his scholastic researches as far as the great Commoner has done. To those who have never considered what light can be thrown upon any given age by a critical analysis of its

great poem, unassisted by any external evidence, the perusal of this little work will act as a revelation. Undoubtedly, the sifting process to which we allude can be carried too far ; our over-acuteness may lead us to try and see points which were never intended by our author ; but it must be admitted that, if Homer's poems are almost the only reliable data we have from which to work out the descent of the Grecian nation, and to trace out the moral lineage of the Grecian gods, no amount of labour which we may think fit to expend upon them can be considered as thrown away.

Some of the minor remarks in his book (for, unfortunately, our space is all too small to admit of an analysis of even a single one of the higher "motives" of Mr. Gladstone's work) are worthy of remembrance. Speaking of Homer's style, we are told that all his productions bear, unmistakably, the mark of their maker, and yet avoid mannerism. The definition which follows of "mannerism" is very good, and should be remembered by the numerous writers who, now-a-days, strive to cultivate a mannerism which they should rather attempt to root out. "The maker's mark, when too prominent, constitutes what is called mannerism. Homer's mark never obtrudes the maker, or places him between the reader and the theme."

In another passage, in which Mr. Gladstone is describing in lofty tones that lofty quality of *aidos*, that shame, which never becomes false shame, that duty, shaped with a peculiar grace, that reverence and chivalry that are "based upon a true self-respect," he is for a moment recalled from the fair fields of Troy to those other and nearer fields where he has so often "drunk delight of battle with his peers." "*Aidos*," he says, "means honour, but never the baseborn thing in these last times called prestige." It is the only passage in the book in which the eager living soul shows itself too large for the narrow armour of scholarship in which, for the nonce, it is accoutred.

Rather too much difficulty appears to be raised at p. 64, in accounting for the junction of the Scamander and Simœis, and for their having, afterwards, separate mouths. The

simple explanation would appear to be, that after one river became tributary to another, the united stream formed a delta at its mouth, and thus divided again into two distinct bodies of water, which might be poetically pictured as a separation of the river into its constituent parts again.

We must dismiss Mr. Jebb's work with a shorter notice. It is pains-taking; but, on account of the much larger extent of ground over which the author has to travel, cannot be made so interesting as the last primer we have mentioned. Mr. Jebb, we notice, does not scruple to employ the term "sin," without any reference to the necessary limitations which we must attach to the word when using it in relation to a people who, strictly speaking, had no conception of "sin" at all similar to the idea which it suggests to our minds.

Mr. Dowden has, in his *Shakspeare*, a subject to the full as interesting as that which employed Mr. Gladstone's attention. Although we know more about Shakspeare's writings and age than we do of Homer's, it is curious how little direct information we have as to his life. By the time that he is as old as Homer, and when a few more such disastrous fires as the recent one at Birmingham have cleared away the few remaining relics and early editions of his works which we possess, he will be a rare bone for the worriers of myths to mouth and wrangle over. Mr. Dowden has no small repute as a careful scholar of our greatest dramatist, and he has brought together in small compass, and marshalled in good order, all the available information which can be wanted by any one beginning to study the plays of Shakspeare. We would refer the students of English versification to the passages in which Mr. Dowden recounts the ingenious tests that have been applied by the commentators to determine the proper sequence and date of his plays. Such are the tests of the number of rhymed lines; the number of lines in which the sense stops at the end of the line, which was an earlier form than that in which the later plays were written, a large percentage of the lines which have the sense

carried on without a break into the next line; and so on. Any enthusiastic student, who feels as if he would gladly contribute his quota to the work of elucidating Shakspeare, may do so to some purpose by checking, with the help of a good edition, the calculations which have been made by such men as Fleay, Ingram, and others, in this branch of research.

At p. 96, in his remarks on the garden scene in the "Merchant of Venice," Mr. Dowden falls into error. He remarks that Portia "fails to receive any pleasure from the music which Lorenzo has so eloquently praised." So far from this being so, Portia says:

"Methinks it sounds much sweeter than by day,"

and goes on, in a passage of much force, to show the reason

"How many things by season season'd are
To their right praise, and true perfection."

Mr. Stopford Brooke's little work on *English Literature* is charmingly written. Until he can afford Taine's larger volumes, these 167 pages will prove of yeoman's service to the student, and will be well-thumbed over. The amount of detail the book contains is marvellous; and yet it is not in any way a mere catalogue of names of men and their writings. If we instance the only omission in it worth mentioning, we shall give our readers a good idea of the exhaustive character of the book. Except a passing allusion at p. 44, Mr. Brooke takes no notice of the wonderful outburst of political literature that took place during the Barons' war. To those who have not consulted the few and scarce reprints of those old ballads and poems, it will be almost past belief to be told that, in those early days, the political doctrines of the Roundheads were shadowed forth in no uncertain language. Mr. Brooke's primer is brought down to 1875.

One of the most interesting books in the series, to our mind, is Mr. Peile's *Philology*. Philology is the only bait capable of making the study of grammar, *as grammar*, inviting. As it is necessary to understand grammars in order to comprehend the science of languages,

we hope the rising generation will take our word for it that philology is as captivating as grammar is (or was to us) dry and sapless. Here is a branch—the degeneration of words—that boys will at once understand: “I knew a gardener who always called China asters, ‘Chinese oysters.’ In Sussex, bronchitis is called the ‘brown crisis,’ and typhus fever sometimes passes into ‘titus fever.’” This reminds us of an urchin we knew, who, being asked what he had been taught at Sunday School, replied, they had been told about three men, “Hay-stack, Meat-rack, and A-bad-negro.”

“All language,” says Mr. Peile, “is free within the limits of intelligibility;” but he certainly does not imply that all within those bounds is equally good. For instance, he condemns, while admitting that its sense is plain enough, the following gem: “An awkward thing to drive is pigs many by one man very.”

We have left ourselves no space for the remaining books on our list. Dr. Morris’ *Grammar*, and the companion book of *Exercises*, appear carefully written, and well calculated to be of use in their particular province. The former is hardly as well printed as others of the same series, and the appearance of the different kinds of type, intended to assist the eye, has occasionally the very opposite effect. The *Primer on Composition* is, to our thinking, a more satisfactory book than the *Grammar*, and with this new text-book, and the Campbell-Swinton’s *Language Lessons*, which we favourably spoke of last month, the subject of English Composition may be said to possess School Manuals of most satisfactory excellence as aids to its intelligent exposition.

THE CYCLOPÆDIA OF EDUCATION, by Kiddle & Schem: New York, E. Steiger; Berlin, Ont., Oberholtzer & Co.

In this age the increasing complexity of social conditions has led to a wonderful subdivision of labour, and the work of the world can only be done at all by the economising of force and the multiplication of mechanical appliances. *Ars longa, vita brevis*, is an aphor-

ism the force of which was never felt so keenly as now. Hence practical men are more and more committing to specialists the duty of research in their own departments, and make use of the results arrived at by them collected together in encyclopædic form. Pope gently satirized the Index-learning which, while making no student pale, yet holds the eel of science by the tail. But cyclopædias, those indexes of learning, have so multiplied in number and grown in bulk, that they would themselves fill now the shelves of the largest private library, whilst the big brother of the family, the great Chinese cyclopædia numbers thousands of volumes and costs tens of thousands of dollars. Next to the Chinese come the voluminous cyclopædias of the Germans, whilst the English cyclopædias are smaller in bulk, fewer in number, better arranged, and more practical. It seems strange that what might be termed the encyclopædia of cyclopædias, namely, that of education, has so far not existed in our language. But so it is, and the volume under review is actually the first attempt that has been made in the English tongue. Whilst the Germans have had in preparation for the last twenty-two years the magnificent work of Schmid—our Schmid, our great cyclopædist Dr. Wm. Smith, has not yet attempted to do for education what he has done so nobly and well for Ancient and Ecclesiastical Literature. We therefore congratulate our American cousins upon the enterprise which has prompted them to produce the welcome volume before us.

It is a handsome book of about a thousand pages, well printed on good paper, and, all things considered, issued at a very moderate price. The Editors, Messrs. Kiddle & Schem, have succeeded in associating with themselves a band of unusually able collaborators, including such well known names as Baird of Connecticut, Chettle of Oxford, Conant of Vermont, Curtis of New York, Donaldson of Edinburgh, Hawes, March, Meiklejohn, Thornton, and Walker—names which are a guarantee of exact knowledge and careful work.

The volume is greatly improved by an ad-

mirably executed analytical index at the end, which greatly facilitates prompt reference to any particular article or subject, and a system of cross references enables the reader to post himself in the various collateral branches of any main topic.

The following are the general topics dealt with in the work :—Theory of Education, School Economy, School Systems, Governmental Educational Policy, History, Statistics, Biography, and Literature of Education. Naturally the American Educational Institutions receive the largest share of attention, and the information as to the colleges and schools in the States is well given and full of interest. Still the great universities, public and national schools in Great Britain, are described by writers, competent to the task, and we can in several instances bear personal testimony to the accuracy of their statistics. Dr. Donaldson's articles on the teaching of Science and the education of the Senses, Professor Curtis' articles on Music and the Culture of the Voice, and those of Professor March, Professor Kidder's account of Sunday Schools, and the articles on educational work in each separate State, may be singled out for especial commendation. Some of the biographical notices are trivial enough, and will subserve scarcely any useful purpose ; but we are not disposed to be hypercritical. We have to complain that, in common with all American writers, the editors seem purposely to ignore much of what was done in England in promoting popular education in modern times ; they see exclusively through German spectacles, and do scant justice to the labours of such men as Lord Brougham, Samuel Wilderspin, Robert Owen, Lancaster and others whose practical influence is quite worthy of being ranked with that of Pestalozzi and Froebel. Perhaps this is a little pardonable jealousy on the part of our cousins, but it detracts from the value of this section of the work before us.

We are glad to see that the editors promise an annual series of Supplements in order to keep the information in the various departments up to date.

On the whole we heartily commend the

Cyclopædia of Education to our readers. Every teacher will be repaid by giving it a place on his shelves—he will find it most handy for reference and a great saving of labour.

THE WORLD: AN INTRODUCTORY GEOGRAPHY, by J. B. Calkin, M.A., Principal of the Normal School, Truro, N. S. Authorized by the Minister of Education for use in the Schools of Ontario. Toronto : James Campbell & Son.

Nearly everything that can be said in favour of the American and Canadian system, over that of the British, of combining Geography and Atlas and Illustrations in one book, may be heartily said after examining this work of Mr. Calkins. Nothing could well be more attractive or better suited as a text-book in Geography than this tempting little volume. The matter is good and the arrangement excellent, with just sufficient of the facts of Geography and the essentials of the political and physiographical features of the world as a young learner will be able to digest. The Illustrations, and particularly the clear and admirably executed Maps, combine to make up a text-book on Geography of a most inviting character, which must render the study of the subject by the pupil an unqualified pleasure as well as an interesting task. The construction of the Maps is evidently recent, as we have the course of the Congo, in Africa, laid down in harmony with Mr. Stanley's explorations, and we notice that Kashgaria or Eastern Turkestan is correctly coloured as part now of the Chinese Empire, by the forces of which power it has recently been re-conquered. On the Map of South America, however, the "Argentine Republic" should replace "La Plata," and Patagonia might as well be included in the same colour as that of the Argentine Republic, as it is really a territory of that Confederation, except the strip on the Pacific side, bounded by the Cordillera of the Andes, which is claimed by Chili. In the Map of the same publishers' Modern Geography it is correctly coloured. The recent award ex-

tending the boundary of the Province of Ontario in the North-West, will necessitate change in the configuration of the Province on the Dominion Map, but this, no doubt, the publishers will attend to. The division of the North-West Territory into the districts of Saskatchewan, Bow River, and Qu' Appelle, in the same Map, is premature and consequently misleading, and there should be uniformity between the text and the Map in naming the new District of "Kewatin." In the Map it is correctly given, as the Statute requires, but in the letter-press it appears as "Keewaydin," for which there is no official authority. Many of the outlines of the Counties in the Ontario Map also require rectification, particularly in the recently formed Districts of Muskoka, Nipissing, and Parry Sound, and the provisional County Haliburton. It is an error, also, to indicate "Dufferin" as a County of Ontario; and Lennox and Addington are one county, except for electoral purposes, and should be coloured alike on the Map, and so indicated in the text.

The award we have referred to will also necessitate change in the area, given on page 21, of the Province of Ontario, where it is stated that the Dominion is *twenty-eight* times larger than that Province. This should now be altered to *eighteen* times, or thereabouts. This will also necessitate alteration in the areas given in par. 141, on page 23, and in par. 183, on page 28; the latter of which makes Quebec over one and three-fourths the size of Ontario, whereas their territorial dimensions may now be said to be nearly alike. As we aim at making our criticism helpful, we might point out what we take to be an inaccuracy in giving, on page 37, the junction of the Red River and the Assiniboine as taking place *sixty* miles from Lake Winnipeg. This should be about twenty-five miles short of that distance, unless the measurement be by water, and the tortuous character of the river much deceives us. On page 54 *Chuquisaca* should give place to *Oruro*, as the capital of Bolivia, as the latter is now the political capital of that republic. But these are minor blemishes

in a work so unquestionably excellent as this manual of Mr. Calkins. The author has long had a high reputation as an able expert in geographical science, and his lengthened experience in the preparation of text-books on geography, with the substantial aid of his present publishers, has enabled him to produce in this new manual a work in every way admirably suited for use in Canadian Schools.

COURSE OF PRACTICAL CHEMISTRY. By Henry Croft, F. C. S., Prof. of Chemistry, University College. Toronto: Copp, Clark & Co.

This new edition, of what has for many years been a well-known hand-book, has been wholly re-written. The present arrangement of the matter will make the subject more intelligible to the beginner, and greatly facilitate the work of those who study the science as it should be studied. Among other marked improvements, we may refer to the insertion of carefully compiled tables for the determination of the acid or base, a compendious statement of the properties of the reagents used in the different groups, and the expression by means of equations of the various reactions that are likely to occur in the course. We note with pleasure, that in nearly all cases Prof. Croft has appended to the name the chemical formula, a change which will be of great service to those who use the manual. Full directions are given for testing by wet analysis, and generally for the examination of such substances as the ordinary student will meet with. Prof. Croft has wisely omitted the consideration of such elements and compounds as are not likely to come under the notice of a Canadian. More prominence is bestowed in this edition on the blow-pipe, and full directions are given for the prosecution of this interesting and expeditious work of analysis. Circumstances incidental to the study of the science in a country like ours have forced the author to omit what is coming to the front as the most reliable mode of investigation—Spectrum Analysis.

Prof. Croft's book is emphatically a worker's manual, tersely and clearly expressed, and methodical and philosophical in its arrangement. A comparison of the present edition with former ones, impresses us with the conviction that the author now desires to combine the study of Theoretical and Practical Chemistry, so far as the proper treatment of the latter subject renders it possible. Were there no other grounds for our opinion, we should, for this reason, prefer the new treatment of the subject. We should like to see Prof. Croft's manual introduced into the better class of our High Schools. The departmental examination papers on Chemistry, in particular, are remarkable, so far as they are to be taken as an indication of the views of the Central Committee, under whose manipulation the science as taught in our High Schools, is just degenerating into a hybrid form of arithmetic. The special reasons for which the physical sciences are valuable, as means of mental discipline, have been ignored or misunderstood by the departmental examiners. To some extent this is not surprising, but a remedy should be provided. The last Intermediate Chemistry Paper is a marked instance of what we refer to. Besides, practical Chemistry has a more comprehensive meaning than that sanctioned by the Education Office. It is not merely the preparation of oxygen, hydrogen, &c; it includes analysis proper, and there is no good reason why the High School and Lower School programme should not cover the analysis of ordinary compounds. Examiners should keep in view the educational value that may be extracted from a study, and should conform their questions thereto. To all who require a good practical knowledge of a subject that admits of being practically taught perhaps more than any other now generally studied in our schools, we recommend Prof. Croft's admirable manual of Practical Chemistry.

THE SCHOOL AND THE FAMILY, by John Kennedy. New York: Harper & Bros. Toronto: A. Piddington.

A book on the ethics of school relations is a somewhat new departure in Educational schemes, yet such is the subject of the little work before us. Its author boldly proclaims his intention of founding the science of School discipline, and of removing the educational energy of the nation from a vicious empiricism by substituting scientific principles for blundering experiment. Every science must pass through an empiric or experimental period; by this means a mass of experience is accumulated and furnishes data for generalization. When sufficient data have been accumulated, empiricism loses its function, and becomes a hindrance. Such is the condition of affairs at present in school relations in the opinion of our author; we are now in a position to investigate and classify our collected materials, to deduce rules, and to reduce the whole chaotic mass to scientific order. Hence our author informs us his book is "an attempt to co-ordinate the truths discovered by empiricism and to fasten them in a well defined terminology." Not satisfied with this, however, the writer attempts more: exposition of a science requires a close methodical reasoning and a corresponding style. This style prevails throughout the book, decking many of our familiar sentiments in a stiff scientific garb, but as the author also aims at reaching the parents and community, we have an abundance of diffusiveness to suit the popular taste. Perhaps in attempting the difficult task of blending the purely scientific with the popular the author has attempted too much, and may succeed in pleasing neither class of readers. However this may be, the book contains much useful information, and will amply repay a careful perusal. The reader will close the book with more definite ideas of the mutual rights and duties of individuals and of communities.

EDITORIAL NOTES.

TOPICS OF THE TIME.

THE subject of the length of school hours, we notice, is here and there in Canada, happily attracting attention. In Hamilton, the matter is being wisely agitated in the interest of the health of the pupil and of his progress educationally. In Montreal, also, the subject is being freely discussed in the press, and, "after-dinner schooling," as it is termed, finds thoughtful and vigorous denouncers. There is no doubt in our own mind, that in the case of very young pupils, at any rate, the length of the school hours wants immediate and considerable curtailment. There is, indeed, nothing more vicious,—more criminal we should say,—than to subject children daily to the five or six hours school incarceration of our present system; and nothing can come of such folly but physical and mental harm. Fortunately nature rebels against a prolonged daily confinement, and the pupil refuses to respond to the continuous and wearying strain upon his attention which our system tries to impose upon him. It would be all very well, however, if the protracted hours only meant time mis-spent by the child, in the lassitude and lack of receptivity he manifests during half the period of his daily confinement; but we know that more positive evils come of the long hours, in compelling him to sit out the weary period in a too often vitiated and unwholesome atmosphere, and in precluding him from taking his nature's fill of sunshine and pure air when he is most vigorously disposed to enjoy these necessities of his being. To the evil is to be added the further tax upon his immature powers, in the enforced hour or two of work in the evening preparation for the morrow's lesson,—generally a hateful addition to an unnecessarily toilsome day's work of the little brain. The folly of it all is that, as indisputable facts

abundantly testify, half a day is better than a whole one of school instruction, and the pupil is certain to learn more, in giving a brief and bright hour or two to his lessons, than in wearying him out by lengthened forenoon and afternoon sessions which but too often drive out all that has painstakingly been acquired. It has often been said that two hours in the morning and one in the afternoon is about as long as a bright voluntary attention can be secured from young children. The benefits of an enforced attention are never great, and no work is acquired well unless acquired with a relish, which can never be the case with either a long lesson or a long day's schooling. The wise teacher, therefore, who understands this, will throw the influence of his opinion emphatically in favour of short school hours, and even with a curtailed hour or two, he will effect much good if with the mental instruction of the pupil, he sandwiches in a goodly amount of gymnastic discipline and drill, as the best invigorator of the mind, and the happiest aid he can make use of in the prosecution of his arduous professional work.

The law inferentially gives to teachers the option of curtailing the length of the daily session, as it prescribes the maximum number of hours of the day's work, but insists upon no minimum. If the Trustees are agreed, the remedy is therefore with the profession themselves who, on every ground of expediency, in regard to the mental and physical well-being of the pupil, should summarily lop off two hours from the school day of young children, and one hour, at any rate, from that of the older pupils. And parents should be assured that, both physiologically and intellectually, their children will gain by the change, and that nothing is more silly than the greed that prompts them

in ignorance of this well-established fact, to clamour for long school hours and, as it is vulgarly phrased, for "the worth of their money."

TEACHERS can no more get on without tools than other professional workers, and no literary material is of greater service to them than the current editions of the prominent works of reference of the time. No school library should, at any rate, be without those books of consultation, the want of which leads to inaccurate and superficial scholarship. None of us can lay claim to omniscience, and the habit of deferring to authorities—and such should always be within reach for reference—not only brings satisfaction in its train, but is the best stimulant to further research, and to consequent mastery of the subject inquired into. An annual grant of, say from ten to twenty dollars, by Trustees of Schools, for this "Endowment of Research," would be the best investment they could make in behalf of sound scholarship; and if the teacher would set apart half an hour each day that his pupils and himself may refer to the authorities for light on matters of doubt coming up in the daily work of the school, he would find great benefit in the occupation himself, and his pupils would acquire increased interest in the studies in which they are engaged.

Without being too ambitious in its scope, the library should, at any rate, contain such works of reference as the following, which, of course, should be of the latest editions, and in the most substantial bindings. A good Atlas, Johnston's "Handy Royal" is the best, but his "Universal" Atlas, at a fifteenth of its price, will be found very satisfactory. A Worcester, or a Webster's Dictionary, is indispensable, though the smaller and cheaper works of Stormonth and of Chambers may suffice, if expense is alone to be considered. A good Biographical Dictionary will be needed, though we know of none satisfactory under the cost of Lippincott's, unless the purchase must be limited to a work on contemporaries, merely. In that case, the new tenth edition of Routledge's "Men of the Time," is the book

to procure. A good work on Chronology will come next, and there is no better book than Haydn's "Dictionary of Dates," of which the sixteenth edition has just been published. A comprehensive reference work in Geography is a necessity, and perhaps Mackay's Manual on the subject will be found adequate, though Keith Johnston's Dictionary is the more complete book. To this should be added, however, such works of statistical information concerning the resources and commerce of the countries of the world, etc., as Martin's Statesman's Year Book, Spofford's American Almanac, and Whitaker's Almanac, for the year, will best supply. In recording the progress of Science, Industry, and Art, for the year, some compend should be added to the library, which will be best found in Baird's Annual, published by Messrs. Harper, New York, and in the English "Year Book of Facts," published by Messrs. Ward, Lock & Tyler, of London. In general literature the want of such works will occur to the student as will explain allusions in the writings of our best authors, furnish a clue to pseudonymous personages, give information concerning the characters that figure in English fiction, and generally answer the important query itself, "who's who?" in literature. The indispensable adjuncts to the library will therefore have to include Adams' "Dictionary of English Literature," Brewer's "Dictionary of Phrase and Fable," with Bartlett's "Dictionary of Poetical Quotations," and, perhaps, Foster's "Prose Quotations," and Bohn's, or Lippincott's "Dictionary of Classical Quotations." Of course the range can be extended *ad libitum*, and be made to include reference works in Classics, Mythology, Antiquities, Modern Languages, the Sciences, etc. Our aim, however, has been but to mention the "Essentials" of a fair working library for school use, the equipment of which should be a matter of conscience with every School Trustee in the country, and be annually replenished by the investment of the moderate sum we have named. In suggesting these purchases we have not hinted at the teacher's necessity to supply

himself with the tools for his own professional work which the progress of education and of modern thought, in every subject, imperatively demand that he should be supplied with. This is a matter that every true, conscientious teacher must debate with himself. In these days, however, it is a crime that any one should undertake the duties of an educator, and yet go on, from year to year, in absolute ignorance of the lights that break in upon every department of his work, as the result of the profound thought and the unwearying research of the age. What a man himself misses in keeping himself uninformed of the activities of the intellectual workers of the time, in every region in which modern thought is ceaselessly in operation, should be a matter of the keenest regret, but in his relation to his work, it is nothing short of calamitous that the great mass of the profession should content themselves with even the most liberal attainments of a bye-gone age while a new world of thought has been ushered in, in the past generation, the effect of which should be to make us all the humblest and most reverent of learners in the school of the new era that has dawned upon the race. But let us not be told that this revival of our student days is mainly a matter of expense for which teachers are not compensated by their employers. This is low ground to take in resisting the impelling motives to keep abreast with the thought of the time, which, if not undertaken for the love of knowledge, *per se*, is not worth the effort to acquire otherwise. The pecuniary rewards of the educator in Canada, we know, are not such as tend to the elevation of the teaching profession, but the allurements to learning are surely not those that are baited solely by the professional prizes in the hands of School Trustees. Even on this ground, however, pin-hole views of the professional equipment of the educator do not pay, and it would be well that this truth had its full weight upon the minds of those, particularly, who look to teaching as a life work.

EDWARD A. FREEMAN, the historian, in the February number of the *Fortnightly Review*,

discusses the question "Shall we Give up Greek?" in an article which is forcible and interesting, but which by no means shows a full appreciation of the real issues involved in the controversy concerning "classical training," a controversy, as he remarks, of periodical recurrence; and which a recent proposal to abandon Greek in some of the Cambridge examinations has brought once more into prominence in England. Mr. Freeman considers the question from a general point of view, and not in relation to the details of Cambridge work. But, even granting that, as Mr. Freeman says, in such a discussion "we come across the old facts and the old fallacies; the old arguments come forth again to be met by the old answers," he does not, in his article, touch upon those facts—old or new—which are really the vital ones, and which must weigh down the balance against ultra-classicism, unless met by something better than a re-statement of the "old answers" which have all the weakness, but little of the dignity of age. Mr. Freeman's arguments in favour of the study of the dead languages are valid enough as against the exclusive modernists; a school of extremists who merit the sympathy of moderate and reasonable thinkers almost (though not quite) as little as do the exclusive classicists. He urges a broader teaching of Greek and Latin, which shall place them in their proper philological connection with the modern languages, in lieu of the present narrow system which has erected artificially a "middle wall of partition which is against use" between "ancient" and "modern" tongues; which wall, as Mr. Freeman says, "it is the great object of the Comparative method to sweep away." He deprecates that pedantry which confines the study of the Greek and Latin literatures to certain stages in the development of each, which it dubs as exclusively "correct" and "classical," regarding other stages as unworthy of attention; and would have the ancient tongues studied intelligently and liberally in their relations to the general history of language and of mankind. Now, with Mr. Freeman's arguments, as far as they

go, we are perfectly in accord; but they stop short of the very point at which the real conflict is raging. His article is, in brief, a reconciliation of Modern and Classical. He does not appear to recognize the fact that during the intervals of the controversy between these two, the periodicity of which he accepts with quite pathetic fatalism, a third party, Natural Science, has appeared on the field, and has directed its assault, not against a purely classical or a purely modern training alone, but against a purely literary training of either kind. The issue at present is, broadly speaking, between Language and Science. It must not be forgotten, however, as it too frequently is, that the new claimant is modest and reasonable in its demands. It is a mistake, into which some of our own contributors have fallen, to suppose that the advocates of scientific teaching desire to see it usurp the whole domain of education to the exclusion of everything else. They ask no more than that Science should receive a recognized place in the general scheme, and, at the same time, that the general scheme should be so amended as to give to each subject that amount of attention which is proportionate to its importance in the primary aims of education. To the knowledge that is of most worth, it is argued, should be allotted the most prominent place; and to other branches of knowledge places in a descending series adjusted according to their relative values. Surely, this is no unreasonable suggestion. Whether, in such a new arrangement of the educational programme, languages and literature, especially the classics, would continue to lord it over Science, is the question which is now pressing for an answer; and which far transcends in importance the secondary consideration as to the relative educational values of the ancient and modern languages. Towards the solution of the minor question Mr. Freeman's article is a sensible, if not very original contribution; but on the greater one it is silent.

THE facilities within reach of the teacher, in the mother-country, in acquiring a theo-

retical knowledge of his profession, are now many and important. As advantage is taken of them, the profession of teaching must gain in dignity, while, by increasing the qualifications of the teacher, education must itself be vastly benefited. At two of the Scottish Universities, chairs of education have of late years been founded, while lectureships, associations of teachers, educational institutes and other professional movements, indicate the increasing interest in the equipment of the schoolmaster, and the stimulus given to the science of pedagogy.

With regard to these organizations, we recently met with a letter, in an American contemporary, from Prof. Meiklejohn, who fills the Chair of Education in the University of St. Andrews, from which we make the following extract. The professor in referring to the teachers' association, says:

"The aim of the latter society, of which I was for some time secretary, and am now vice-president, is to make the occupation of teaching a *learned profession*, into which there shall be a difficult and discriminating entrance, and in which there shall be a career after you have entered it. At present the prizes fall to men who are clergymen, and who look to teaching as a mere stepping-stone to preferment in the church. We mean to raise the present condition of the so-called profession, until it shall go into the open market and compete for the possession of the best and ablest heads in the country,—with the army and navy, law, medicine, and the church. In addition to numerous signs that this time is rapidly approaching in Great Britain, I may point to the foundation of two chairs of education in the Universities of Edinburgh and St. Andrews. The occupants of these chairs are styled Professors of the Theory, History, and Practice of Education; and their duties are to study the subject, to write the literature of it, to criticise the present procedure in primary and secondary education, and to train students to be teachers. The largeness of their title, and the vastness of their functions, point to the early creation in all our universities of a faculty of education. Toward this our university of Cambridge has taken a most important step. The syndicate of that university have recommended the creation of lectureships and chairs in the theory and history of education; but they do not as yet see their way to training men in the practice of their profession."

The establishment of these chairs of education at the Universities, though a new departure in scholastic enterprise in the mother-country, must yet be of paramount importance to those devoting themselves to the work of teaching. We have in Canada our Normal Schools, and other training machinery for the profession, but there is no reason why some of our more ambitious Colleges should not establish a chair of education and find it a great attraction to their regular arts course. Mr. Crooks might arrange that Toronto University should make the experiment, and perhaps Prof. Wilson might be induced to undertake the lectureship. Or, there is the chairman of the Central Committee, Prof. Young, whose familiarity with school work, as examiner for a number of years, eminently fits him for the task, if the requisite interest can be awakened in the subject so that the chair may be suitably founded and endowed.

WE can imagine some of the profession getting restive on the subject of the qualifications of the teacher, conceiving that they hear too much of the matter and see too little of recompense for any high qualifications with which they may seek to endow themselves. Nevertheless, it must be apparent that the prizes of the profession are apt only to fall into the lap of the deserving, and that he who best fits himself for his work is the man who is most often successful. But the "getting of knowledge" is not alone the object for which the ambitious teacher should be found to strive. The great desideratum in the profession to-day is skill in imparting instruction; and to be "apt to teach" is as great a requisite as any other qualification of the educator. But there must be a certain basis of mental endowment in the teacher before he can realize in what the art of teaching consists, and what practical measures are necessary to qualify himself as a successful instructor. The scope of this mental endowment may be gleaned from the following extract from a late number of the *National Journal of Education* just to hand, and we transfer it to

our pages in the hope that the profession will more and more encourage habits of mental training and discipline, so that they may gain wider views of their work, and attain to more success in the methods which they adopt in pursuing it.

"The natural and acquired qualifications of teachers in our high and technical schools cannot be too comprehensive. It would be of infinite benefit to the state and nation, if the men by whom the minds of our children are modelled, and by whom they are fitted to fill their place in life, were among the most eminent scholars and wise men. Who can doubt the benign influence upon their minds of companionship with, and sympathy from, powerful and leading minds? Should not such influences confer a blessing upon their life, and fill their minds with noble aims and purposes? Make it an axiom that society will not accept as teachers of our youth, in their highest professional walk, any but men whose knowledge of their respective subjects is thorough and profound. We often select, as teachers of our children, as their associates and guides in their studies, men to whom we neither give the highest seats at the social table, nor place on an equality with our own society. If we were *truly* wise, we should think no manner of men too distinguished, and no social remuneration unreasonable, which should tempt into the ranks of practical educators the most distinguished men in science, art, and practical life, and secure the first condition that the things taught have the advantage of power, weight and authority. We should reckon teaching as a special art, for which the knowledge of peculiar principles, acquaintance with approved methods, and a special training are necessary. A man should be taught the art of teaching from *masters* in teaching. These masters should show him how he first analyzes the special object and the aims of each kind of teaching, and of each branch in that kind; he should also analyze the state of mind and preparations suited to that class of instruction, and how he must parcel out the way into short journeys, with halting-places between the many stages of distances that must intervene between the pupil's aim and its achievements.

The teachers who show others how to think with truth, know with exactness, choose with wisdom, and act with effect, must have studied the laws of thought, fathomed the well of truth, surveyed the range of human choice, and studied the consequences of human action. To him the human mind is the first matter of study, and the next is human speech, with which man is endowed as the instrument of expressing thought.

The organization of man in human society is of great importance, and the knowledge of the way in which societies have grown up into their present state of organization is an indispensable preparation for successful teaching. No man must be left to act on his own judgment of that of which he knows only a portion. The man who handles matter must know its whole nature; the man who handles mind must know its hidden working. The man of the future must have *two* qualifications; education to *know*, and skill to *do*."

EDUCATIONAL MATTERS ABROAD.

THE opening of London University to women, last summer, is likely to produce very satisfactory results. At the recent Matriculation Examination, five hundred and seventy candidates presented themselves of whom eleven were women. Only two hundred and fifty-nine satisfied the examiners, but nine of these were women. It will be thus seen that while forty-five per cent. of candidates passed among the males, nearly double this percentage, or eighty-two per cent. of women passed, and passed with distinction, the first six occupying the second, ninth, eighteenth, twenty-first, thirtieth and forty-seventh places respectively, in the Honour List, and the remaining three being in the first division.

At the great Exhibition of 1851, the eyes of English manufacturers were thoroughly opened to their inferiority to the French in matters of design in textile and other fabrics. Benefiting by the lesson they then learnt, they set about opening Schools of Art and Design in various parts of the country in which they were aided and encouraged by the Government. Now what is the result? Sir P. Cunliffe Owen, C.B., Director of South Kensington Museum says, that while acting as secretary of the English Commission at the Paris Exhibition he had had opportunities of witnessing the practical results of the Schools of Art. As an Englishman, he continued, he had reason to be proud of the position this country had taken during that Exhibition. He had been pleased to hear the French acknowledge that we

had obtained, through the agency of Art Schools, a style of our own, and that they were willing to come to this country for designs for their manufactures. Previous to his going to Paris, and while at South Kensington Museum, foreigners had come to him and spoken of the excellence of the designs obtained from this country, and he knew that French manufacturers had spent hours in the Paris Exhibition admiring, and, as they confessed, copying English designs, because they felt that unless they followed in the wake of this country they would not be able to hold their own in the race.

SIR HENRY COLE, C. B., in presenting prizes at the Portsmouth Schools of Science and Art, advocated the system of beginning science and art in the shape of cooking in elementary schools, which, he contended, would add to the great good and comfort of the people. He urged that the rudimentary principles of science should be taught in Board schools, and advocated the establishment of county associations for schools of needlework. He also advocated the development of music, which he argued was one of the most divine things God ever created.

BRIEFS ON NEW BOOKS.

The Educational Year Book for 1879. London: Cassell, Petter & Galpin. In a volume of about 350 closely printed pages, the Editor gives the result of a minute survey of the whole field of public education in England and Scotland, with such details of the various institutions which afford opportunity for obtaining an elementary, secondary, higher school, and university education, as could be gleaned for publication. Almost every feature of these institutions is succinctly described, with details of the terms and conditions of admission, the course of study, the discipline, the fees, the scholarships, together with an indication of the scope of the teaching—whether it is prevailingly classical or scientific—and all other essential facts about them which one may be supposed to wish to know. Enumeration is

also made of the separate faculties and classes at the universities, the curriculum for graduation in the various courses, with lists of the bursaries, &c., &c. The compilation is a specially valuable one for consultation and reference, and we will be glad to see it make its stated annual reappearance.

Arnold's Henry's First Latin Book, edited by C. G. Gepp, M.A. London: Rivingtons. One manifest gain in the production of text books, which the competition of school-book publishers has secured to the profession, is the greater simplicity of arrangement, and the improved mechanical appearance of the page, which characterizes the work of modern writers and editors of school books. The work of the schools has so greatly increased of late, and the multiplicity of their studies is such, that the improved features of the text books of the day are matters of no small moment, when the amount of work that has to be got up is considered. The present edition of our old friend, *Arnold's Henry's Latin Book*, is noticeable for its more attractive and inviting page, and for the simplification of much of its matter. The exercises, too, seem to have been pruned and brightened, and the work altogether has evidently undergone an intelligent and sympathetic overhauling. A striking feature in the new book is the development of the lessons on the principle of the gradual formation of words from their stem-roots, the case-endings being shown by changes in the type. A number of questions in syntax, a vocabulary, appendices, and general index, make up a capitally modernized First Latin Book, which no doubt will continue to hold its own in competition with the thousand and one elementary text books in Latin known to the teacher of classics.

LITERARY, SCIENTIFIC, AND ART JOTTINGS.

MESSRS. BENTLEY have just ready, from the sprightly and satirical pen of that dowager gossip, Lady Jackson, a work on "Old Paris; its Court and Literary Salons."

MESSRS. MACMILLAN & Co. have just

ready, "Paradoxical Philosophy," a sequel to the remarkable work entitled, "The Unseen Universe;" and a work by the late Prof. Herbert, on "The Realistic Assumption of Modern Science examined."

THE Dean of the Faculty of Law in the University of Melbourne, Dr. W. E. Hearn, has just issued an introduction to comparative jurisprudence, under the title of "The Aryan Household; its structure and development."

MESSRS. E. & F. N. SPON, of London, have just ready part I of their great "Encyclopædia of the Industrial Arts, Manufactures and Commercial Products," edited by Prof. André, F.G.S.; also, "A Descriptive Treatise on Mathematical Drawing Instruments," by W. F. Stanley, M.R.I.

LT.-COL. T. E. GORDON, C.S.I., lately attached to the special English mission to Kashgar, has published a work on Russia in the East, entitled, "The Roof of the World." The book consists of a narrative of a journey over the high plateau of Thibet to the Russian frontier and the Oxus sources on Pamir.

MR. STANLEY LANE POOLE has just edited a Life of E. W. Lane, the translator of the Scholar's Edition of *The Arabian Nights*, containing concise and graphic extracts from Lane's Diary, descriptive of many of the stirring features of Eastern life amid which the distinguished Oriental scholar passed his days.

A BIOGRAPHY of William Cobbett, that "sturdiest Englishman of our grandfathers' time," as Mr. Thomas Hughes, in a recent notice of the work in *The Academy*, calls him, has just been published. As the well-known grammarian, the most powerful political writer of his day, and a self-made man of note, the memoir will doubtless be sought after by many of our readers.

THE Rev. Prof. Oswald Heer, of the University of Zurich, has made the remark that "Switzerland forms a magnificent temple of nature, in which we may follow in succession the past periods of the world's history." We notice that a translation of the distinguished professor's work, "The Primeval World of Switzerland," has just been

published, which will be interesting to all students of geology.

IN the department of the Fine Arts, Messrs. Virtue & Co. have just issued three works of special interest, viz.: "Art and Art Industry in Japan," by Sir Rutherford Alcock, late H. B. M. Plenipotentiary at Yeddo; "Metal Work: a series of 1200 of the best examples which attracted attention at the various International Exhibitions, with a treatise on the principal industries which have produced them," edited by Prof. G. W. Yapp; and "The History of Ceramic Art in Great Britain, from the Earliest Period to the present day," by Llewellynn Jewitt, F.S.A.

THE new important publications of Messrs. C. Kegan Paul & Co. embrace a translation of Dr. Jacob Burckhardt's notable work on "The Civilization of the Period of the Renaissance in Italy;" the new volume of the International Science series, on "A History of the Growth of the Steam Engine," by Prof. R. H. Thurston; "Social Problems; or, an Inquiry into the Law of Influences," by J. T. Thomson; and an essay introductory to the study of philosophy, entitled, "The Balance of Emotion and Intellect," by Charles Waldstein, Ph.D.

MESSRS. SAMPSON LOW & Co., of London, so says *The Academy*, are about to issue an important "international" work, entitled *The Hundred Greatest Men*, being the lives and portraits of the one hundred greatest men of history, divided into eight classes, each class to form a monthly quarto volume. The introductions to the volumes are to be written by recognized authorities on the different subjects, the English contributors being Mr. Matthew Arnold, Mr. Froude, and Prof. Max Müller; those in Germany, Profs. Helmholtz and Curtius; in France, MM. Taine and Renan; and, in America, Mr. Emerson. The portraits are to be reproductions from fine and rare steel engravings.

MR. WHITAKER, Editor of the London *Bookseller*, some years ago made a most laudable attempt to supplant the vicious and unwholesome literature which finds its way

into the hands of youth, by the issue of *Whitaker's Journal*, an attractive illustrated publication of high moral tone and healthy influence. Unfortunately the commendable purpose of its projector did not secure for it a long lease of life. Now, however, the attempt is again made, this time by the Religious Tract and Book Society, of London, which has just issued the first monthly part of "The Boy's Own Paper," a publication for which we bespeak the interest of teachers and guardians of the young, that the natural craving of young lads for exciting stories and tales of adventure may be appeased, without risk either to their moral or mental nature. The publication may be had through the Canada agencies of the Society, or at the chief Depository, 102 Yonge Street, Toronto.

THE *Athenæum* announces that under the editorship of Mr. J. R. Green, and the title "Classical and English Writers," Messrs. Macmillan & Co. have in preparation a series of small volumes upon the authors that are chiefly studied in schools. The primary object of the series is educational; the endeavour will be made to give the information in a clear methodical form, but yet in a style so far attractive as to arouse an intelligent interest in the authors, their age and surroundings. Addressed in the first instance to schools and to candidates for examinations, these biographical and critical studies appeal also to the wider public who are interested in literature for its own sake. The following volumes are in a more or less advanced state of preparation (two, those on Euripides and on Milton, will be published in March):—"Herodotus," by Prof. Bryce; 'Sophocles,' by Prof. Lewis Campbell; 'Euripides,' by Prof. Mahaffy; 'Demosthenes,' by Mr. S. H. Butcher; 'Virgil,' by Prof. Nettleship; 'Horace,' by Mr. T. H. Ward; 'Cicero,' by Prof. Wilkins; 'Livy,' by the Rev. W. W. Capes; 'Milton,' by the Rev. Stopford A. Brooke; 'Bacon,' by the Rev. Dr. Abbott; 'Spenser,' by Prof. Hales; and 'Chaucer,' by Mr. F. J. Furnivall. Others will follow should the idea meet with encouragement.

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THE BASES OF EDUCATION.*

BY WILLIAM D. LE SUEUR, B.A., OTTAWA.

MAN'S intellectual superiority consists in his recognition of law; and therefore to make that recognition more complete should be the great end of intellectual education. It is by alternately knowing and not knowing, attaining certainty and grappling with doubt, that the mind is kept in motion and that its faculties are developed. Had there been no law in nature, there could have been no form of organization at all. Had natural laws been intermittently or arbitrarily administered there might possibly have been animal life, but there could not have been intellectual life. It is by successive recognitions of fixed facts, of uniform sequences, in nature that thought acquires definiteness, that man is enabled to say, "I know," and that he gains a solid foundation for such efforts as he may desire to make in his own behalf. We see this principle illustrated in the case of every child whose mental growth we have an opportunity of

watching. From the first there is sensation, but attention, perception, recognition, expectation, are subsequently developed. And how? By the constancy of recurrence of certain phenomena. To the infant mind all is chaos, a confused medley of impressions; little by little a certain order of occurrence amongst the impressions is perceived, and people begin to say that the child "notices." This noticing is simply attention given to an object as having been seen before. By frequently creating the same impression, a given object makes a way for itself, so to speak, in the child's brain, and becomes to the child what it was not before — an individual thing. It is so much rescued from the general chaos of the object world. This is an immense step gained, and it is very proper that it should be regarded by nurses and parents as a matter of extraordinary interest. From this time the child's education advances rapidly; object after object

*Portion of a Presidential Address delivered before the Literary and Scientific Society of Ottawa.

detaches itself from the maze of undistinguished things; and by and by a stage is reached when things begin to excite attention by their *unfamiliarity*, when a strange face, for example, will even make the child cry. Everyone, I am well aware, understands all this after a fashion, but the practical lesson which it is designed to teach is in general but feebly realised. That lesson, I take it, is this, that the great business of the mind is to watch for, and take note of, the uniformities of nature, and that any education that does not promote this habit is useless, or worse than useless, for intellectual purposes. How far our systems of education have been from keeping this great principle steadily in view, may be judged from the fact that the majority of people, instead of loving especially to dwell on the uniformities of nature, instead of wishing to narrow the realm of chaos, and extend that of ordered knowledge, show tastes and dispositions of a precisely opposite kind. They run after the marvellous; they love to hear of an effect produced without a cause, or of a cause that failed to produce its effect. The more extraordinary the story you tell them the less exacting they seem to be in the matter of evidence. One would think that the human race had an interest in escaping from the reign of law, and making chance, or some arbitrary inscrutable will, the controller of its destinies. From one point of view all this is very ridiculous; but from another it is nothing less than sad. Here is nature, the great nurse and teacher, to whose fostering care and incessant monitions we owe our whole physical and mental development, and who offers us every hour and every day the true bread of life; and yet we turn from her with impatience to pursue the unholy charms of some lawless mystery. Can we do this without hurt to ourselves? Never; in some way

or other we are sure to suffer for the despite done to the truth of nature. Perhaps the fancy we are pursuing is one that seems to entail no practical consequences of any kind; but if we are pursuing it out of simple love of the marvellous, or in a spirit of antagonism to law, we pervert our own understanding, and, in some unlucky moment, we shall reap the reward of our folly. We see one another's errors better than we do our own; and I need hardly ask whether we are not all cognizant of lives that have been shadowed, of careers that have been spoilt, of infinite mischief that has been wrought, as the result of intellectual infirmity, as the result, we may say, in one word, of some want of respect for law.

I say, therefore, and I say it with all possible emphasis and earnestness, that whatever we teach we should try and plant the feet of youth on the everlasting foundation of natural law. Whatever they may do, they are environed by law, and cannot escape its action. Surely, therefore, no duty can be more obvious than that of opening their eyes to a recognition of their true position. Once take cognizance of these laws, and resolve to have them on your side, and not against you, and the chances of life, if chances they may still be called, are all in your favour. But remain ignorant of them, or, perceiving them, flatter yourself that they were not made for you, that, by a little finessing, you can at least gain the odd trick in the game of life; and your position is a most perilous one. In modern life there is an enormous deal too much of this gamester spirit; and what its results are the newspapers are every day telling us. It is a terrible thing to cast away the sure methods of nature and to make chance your ally and dependence. Could so many do this if the same amount of energy which is now expended in teaching various matters of

minor importance, or of no importance at all, had been devoted to representing nature and law in general as the steadfast friend of man, a friend which, as Matthew Arnold has expressed it, never "promised aught it did not give," and which stands ever ready to second every effort made in a right direction. The eminent writer, whose name I have just mentioned, has told us much, but not too much, about "a power that makes for righteousness." That such a power does reside in the very constitution of things is abundantly capable of proof, and—we may rejoice to think—is being proved in the daily experience of thousands. Who does not recall those wonderful lines of Wordsworth's, in his "Ode to Duty?"—

"Stern law giver! yet thou dost wear
The Godhead's most benignant grace,
Nor know we anything so fair
As is the smile upon thy face;
Flowers laugh before thee on their beds;
And fragrance in thy footing treads;
Thou dost preserve the stars from wrong;
And the most ancient heavens through thee
are fresh and strong!"

Then follows the earnest personal appeal:

I myself commend
Unto thy guidance from this hour;
Oh let my weakness have an end!
Give unto me, made lowly wise,
The spirit of self-sacrifice,
The confidence of reason give;
And in the light of truth thy bondman let
me live!

It is a bold figure of speech which represents duty as "preserving the stars from wrong," but the meaning of the poet, I need hardly explain, is that the starry heavens exemplify the law and order of which duty is simply the expression in the moral sphere.

If it be asked by what special course of training men may best be brought to feel the force and recognize the essential beneficence of natural law, I will answer that, in the first place, we must avail ourselves of the teach-

ing which nature itself every day affords to those who will open their eyes to see and their ears to hear. We cannot too early teach children the properties of objects and the necessary results of certain actions. This kind of teaching, not calling for any exercise of abstract thought, but depending almost wholly on direct sense-impressions, will not overstrain their minds. It is the kind—as of course we might expect—which they most readily assimilate, and which indeed they are in one way or another always pursuing themselves. Children "want to know" a great many things about the world around them; but I never yet met the child who wanted to know—that is to say as a matter of spontaneous desire—whether a certain word was an adverb or a preposition, or what were the boundaries of the kingdom of Timbuctoo. In saying this I do not wish to disparage the study of grammar or of political geography; I only wish to call attention to the difference between two kinds of knowledge, one of which has a natural affinity for the human mind, while the other is only secondarily, or, so to speak, artificially, a matter of human interest at all. As to the extent to which natural science need be pursued in any general system of education much diversity of opinion exists. A competent teacher might convert a very little natural knowledge into an invaluable instrument of education, while another might go through a considerable course of science with his pupils, and leave them, so far as his efforts were concerned, but little better than he found them. Love is at all times the great interpreter; and no one is a worthy interpreter or commentator of nature who is not in love with nature, who does not rejoice in the idea of law. Let the idea of law be at the base of education, and very useful results may be obtained from any

course of instruction not altogether frivolous. It is sometimes thought that there is an antagonism between the study of science and the study of language or literature; no opinion however could be more unfounded. Language, and even the niceties of language, may be studied in a thoroughly scientific way; and we must indeed study language with very close attention if we would place at the disposal of science such an instrument as it requires in the pursuit of its investigations and the exposition of its discoveries.

"Cognition" however, as Mr. Spencer says, "does not produce action." If we would influence conduct favourably we must stimulate the higher feelings with greater activity. What are the higher feelings? Surely those social sympathies of which we were speaking a few moments ago. Can these be affected by education? Undoubtedly they can, but on one condition—that educators of the right kind are forthcoming. We are what we are by virtue of the relations of mutual dependence which we sustain towards one another. There is a feeling shared by the most ordinary characters that every man stands more or less in need of his neighbour's sympathy and assistance, and speaking generally, men do not refuse one another those good offices which each knows he may at any moment require for himself. This is the point we have gained in modern society; but that such a measure of social development is still compatible with many and great evils is visible at a glance. Men who would not openly disoblige one another in small matters, will over-reach one another in business transactions, and in regard to the community at large, the State, will allow themselves to act with still less regard to equity. How can this be remedied, or rather—for this is the most practical question with which we have to deal—how can

we aid, in the case of the rising generation, the somewhat slow process by which nature moulds men to social conditions? I answer by first of all trying to impress ourselves, and then trying to impress our children with a sense of the benefits which we and they owe to society, with the high and really inestimable advantages of the social state, by calling out their admiration for every beneficial course of conduct, every course of conduct that tends to strengthen the bonds of unity between man and man, and so to render social intercourse purer and happier, by representing the organized forces of society, such as national, local, and civic governments as beneficent in their nature, and as deserving of the cordial support of all good citizens; finally by showing an example of reasonableness, equity and good-will in our own dealings with our fellow-men. It should not be difficult to bring home to any average mind some sense of what we owe to those who have gone before us, and so to create a certain reverence, or, at the very least, a certain affectionate regard for the idea of humanity. When we think what strange forms human devotion has taken in times past—what strange forms it assumes even in our own day; when we think how much passion has been drawn forth by symbols and creeds which we can scarcely imagine to have ever had any significance, when we think of the fervour of loyalty that very unworthy persons and causes have excited; when we think of the patient cherishing by whole nations, generation after generation, of delusive faiths and ideals; when we see what a wealth of feeling, of enthusiasm mankind have lavished upon successive creations of their imagination, is it too much to hope that, some day, these streams of moral and social energy may be directed to thoroughly rational and worthy conceptions and objects?

The history of civilization is a history full of interest and pathos, if it be but rightly told; and it is one to which we should as often as possible direct the thoughts of youth. But in order that we may do this effectually we must, of course, realize ourselves all that we would have them realize. It is the glory of the Positivist school to be working unceasingly to bring these thoughts home to the minds of all men; and I can safely say that few more eloquent pages have been written in this generation than some which Mr. Frederick Harrison has consecrated to this theme: "Do you not think," he asks, "this collective power of man's life is itself a majestic object of contemplation? Does not our imagination stir when we think of its immensity? Does not our intelligence triumph in its achievements? Do not our souls melt to remember its heroism and its sufferings? Are we not dust in comparison with that myriad-legged world of human lives which made us what we are? Every thinker who ever wore out his life, like Simon, on his lonely column of thought, was dreaming for us. Every artist who ever lifted himself into the beautiful lifted us also. Nor was ever mother who loved her child in toil, tears and pain, but was wrung for us. Each drop of sweat that ever fell from the brow of a worker has fattened the earth which we enjoy. Martyrs, heroes, poets, teachers, toilers, all contribute their share. . . . There were Nazarenes in many ages and in many climes, and Calvaries have been the land-marks of each succeeding phase of human story. Moses, Buddha, Confucius, St. Paul, Mahomet, the ideals and authors of every creed, have been but some of the Messiahs of the human race. The history of every religion is but an episode in the history of humanity. Nor has any creed its noble army of martyrs which can compare with that

of MAN." In another place the same writer has said: "There is nothing new in this conception of humanity. From age to age it has been gathering into fresh distinctness and completeness. It was forming in the mind of St. Paul, when the Apostle to the Gentiles first conceived a religion that might embrace all mankind; to Augustine too, in some sense, when he saw the vision of the City of God. It has been growing in clearness in the minds of great thinkers and great natures of every age and every faith. It inspired the Catholic reformers, and the greatest of the Protestant reformers alike, St. Bernard, St. Francis, Pascal, Fenelon had some unconscious presentiment of it along with Zuingli, Fox and Wesley. It filled the air in that strange exaltation of hope which preceded the revolutionary storm. In the midst of the crisis it rose suddenly to the distinctness of a religious conception; and, in the absence of all other faith or conviction, it formed the real force of the highest spirits of the Revolution,—of Condorcet, Carnot and Hoche. Since then it has formed the practical unconscious religion of our time; it forms the unuttered hope of all earnest reformers and teachers, and at this hour it profoundly colours the current theology around us."

When, therefore, it is asked, as it so often is, whether culture can suffice for the direction of life, let us clearly understand in what sense the word is used. According to the views which I have been attempting to express, the only true and adequate culture is that which, first of all, trains the intellectual faculties to the recognition of law, and so places the individual in a natural relation to the forces and agencies, natural and human, by which he is surrounded, and, secondly, presents human history and society in such an aspect before the mind as to stimulate the social sympathies to

as high a degree of activity as they are capable of. For culture, so understood, it seems to me that a great deal might be said. If it be objected that culture in this sense is not within reach of all, or indeed of more than a small minority of the community, I answer that the highest blessings of civilization have never been within the reach of more than a small minority,—that the highest blessings of Christianity itself have never been brought home to more than a small minority. All good causes must advance as best they may. What we are just now concerned with is the probable effect upon individual happiness and public morality of such a culture as has been hinted at, seconding the teachings of nature, and of circumstances. The logic of facts is often persuasive when other logic fails, and what I have now in view is a system of education which would aim at anticipating the logic of facts, so as always to be confirmed by the latter.

I am well aware that this question of education, considered especially in its moral and social aspects is one which many persons are pondering, with not interest only, but anxiety. Youth is ever hard to control, but possibly the youth of to-day is paying even less heed than might, in the light of past experience, be expected to the counsels of the elder generation. If we are to trust what is being said on every side, the problem what to do with boys is becoming a more difficult and embarrassing one day by day. Why should this be so? There is only one possible cause that I can suggest; and that is a decline in moral authority on the part of parents and instructors. But why such a decline? Simply—if I must give an answer—because the present age is one, as has been said, of “weak convictions.”—Before we can teach we must believe. Make-believe will not do; it may impose upon ourselves, but its weak-

ness will come out when we try to make it a ground-work for influencing others. Nor shall we be any better off by trying to strike a safe average between extreme opinions; belief is not to be got at in any such fashion; and nothing but belief can give the intellectual and moral momentum required for swaying the mind of youth. We must have a system to work on, and one not arbitrarily chosen as a matter of convenience, but one to which we give a full, sincere and involuntary adhesion. A defective system earnestly believed in will prove vastly more efficacious than a more advanced and rational one, which is but indolently accepted and languidly held. It was the stern Roman mother that made the heroic and virtuous Roman citizen; but the sternness in this case—as in all cases where sternness has been useful—was not mere hardness of nature, but the natural temperament of a mind at one with itself and holding to certain views of life and duty, with inflexible grasp. In our more favoured day there may perhaps be similar mental unity, with less severity of temper; but we must, before all things, know our own minds, before we can successfully undertake to guide the minds of others. Nor will our methods be satisfactory until we can feel ourselves working hand in hand with nature, not striving to keep up an artificial system, nor letting sentiment usurp the place of reason, but speaking and acting at all times the thing that is true. How many children are brought up without any preparation at all for the struggle that awaits them in life? How many are allowed to contract habits of indolence and self-indulgence which wholly unfit them for manful exertions,—which perhaps blast their careers at the very outset? How many youths are allowed—pardon me an expressive vulgarity—to “loaf around” for

months or years, waiting for some employment to turn up which it may befit their dignity to accept, and meantime losing that highest dignity that comes of self-helpfulness and independence? Am I speaking now of a few exceptional cases, or do I point to a really sore evil in modern society as we all know it? Well, culture as I understand it, would remedy all this by looking facts straight in the face and devising courses of action adapted to, and based on, the facts, by abandoning all worship of appearances and getting down to the "hardpan" of the true and the necessary. There is a great deal of worship, it seems to me, in a cheerful and, as it were loyal, acceptance of facts as we find them, on the understanding, of course, that we shall improve them if we can. The man who is perpetually grumbling at the conditions of his life is a man upon whom the best lessons of life have been lost, whose feelings have never been kindled into gratitude nor chastened into submission, nor disciplined into unity and strength.

If then we can agree as to the general principles on which education should be conducted, there can be little doubt in any of our minds as to the ideal of society which the system we have in view contemplates, and which it would tend to realize. Manifestly an education directed to perfecting men and women physically, to training their intellects into happy conformity with the order of nature, and to awakening, strengthening and disciplining their social sympathies, would in the long run, and perhaps in no very long time, rid society of idlers. It was a capital page that the socialist reformer, St. Simon, wrote one day when he was particularly impressed with the very different value to society of the real producers, whether in the realm of industry, of art, or of science, and the mere wearers of titles and

devourers of revenues. Let me read you a translation of it:—"Suppose that France were to lose suddenly its fifty foremost physicians, its fifty greatest poets, and the fifty most distinguished and ablest men in every useful profession and craft, say in all the three thousand most eminent savans, artists and artizans that it possessed. As these men are all producers in the very highest sense, those whose works present the most imposing character, those who direct the labours that are of most utility to the nation, and who render the community prolific of works of art and industry, they are really the flower of French society; they are the Frenchmen who are most useful to their country, who gain for it the most glory and do most to hasten its civilization and prosperity. It would take France a generation at least to repair this disaster; for the men who distinguish themselves in pursuits of positive utility are real anomalies; and nature is not prodigal of anomalies—particularly of this kind.

"Pass now to another supposition. Let France preserve all the men of genius she possesses in the sciences, the fine arts, and in all industrial occupations, but suppose that she has the misfortune to lose, in one day, Monsieur the brother of the King, Monseigneur the Duke of Angoulême, Monseigneur the Duke of Orleans, Monseigneur the Duke of Berry, Monseigneur the Duke of Bourbon, Madame the Duchess of Angoulême, Madame the Duchess of Berry, Madame the Duchess of Orleans, Madame the Duchess of Bourbon, and Mademoiselle de Condé.

"Then let the country lose, at the same time, all the great officers of the Crown, all the *maitres de requêtes*, all the marshals, all the cardinals, archbishops, bishops, grand-vicars, and canons, all the prefects and sub-prefects, all the employés in the public

departments, all the judges, and in addition to all these, the ten thousand richest proprietors amongst those who live like gentlemen.

"Such an accident would certainly afflict the French, because they are good-hearted, and because they could not view with indifference the sudden disappearance of so large a number of their compatriots. But this loss of thirty thousand individuals reputed the most important in the State, would be a cause of sorrow in one way only, that is to say, on sentimental grounds, because no evil would really result to the State.

"For, to begin with, nothing would be easier than to fill the places which had thus become vacant. There exist a great number of Frenchmen able to perform the functions of brother to the King quite as well as Monsieur himself; many, too, are capable of occupying the position of the Princes of the blood royal quite as well as Monseigneur the Duke of Angoulême, Monseigneur the Duke of Orleans and the rest.

"The ante-chambers of the palace are full of courtiers ready to jump into the places of the great officers of the Crown; the army possesses any number of officers who would make quite as good commanders as our marshals. How many clerks are quite as competent as the ministers? How many administrators better fitted to be prefects and sub-prefects than the present holders of those offices? How many lawyers as good jurisconsults as our judges? How many curés as capable as our cardinals, our archbishops, our bishops, our grand-vicars, and our canons! As to the 10,000 proprietors, their heirs would need no apprenticeship to do the honours of their drawing-rooms quite as well as themselves."

There is some exaggeration and perhaps some injustice mingled with the very dry humour of this compari-

son; but it is far from destitute of substantial truth. Remember that the picture is drawn from the France of the Restoration, where, in the filling of public offices, privilege and favouritism reigned supreme. We can, however, draw a lesson from it suited to our own time and country. The time is coming when it will be a dishonour to a man in the full possession of his energies not to be actively engaged in some useful work, when it will take as much hardihood for a man to avow that he lives only for his own amusement, as it would take now to avow that he lives by scheming and trickery. The public sentiment of to-day already makes the position of a fashionable idler a somewhat questionable one, and we cannot doubt that the public sentiment of a generation hence will erect a higher standard still of social duty. Of course there are always some who remain blind, up to the last moment, to coming changes: and what Carlyle calls "Joe Manton dilettanteisms," still make considerable show in the world: but they are doomed to disappear just as surely as the inferior civilizations give way before the superior.

It would take more time than it would be proper for me to occupy to trace, even in outline, the changes which might be expected to flow from a thoroughly rational system of education, or in other words, from the establishment of a perfect *entente cordiale* between man and nature. Suffice it to say that new value and dignity would be lent to life; we should have a sense of proprietorship in the world and the forces of nature such as we never had before; our best energies would be thrown into the work of improving our great inheritance, and common men would find how sweet it was to lose the sense of self in the sense of kindred and of oneness with humanity at large. The family, in modern times has reached

a high point of development, but can we claim as yet to have established society? I know well to what charges one lays himself open who breathes a word against unrestricted individualism; yet I do not hesitate to say that the law of competition has not given, is not giving, and never will give us, a perfected society. So long as we daily pass in the streets hundreds of people whose lives, as compared with our own, are joyless, hopeless, and all but worthless, so long as there are outcasts at every corner, while griping poverty lurks in every by-way, and all this while capital is accumulating in idle hands, and luxury is every day learning some new art, so long as this is the case we must not claim the name "society" for the system under which such things are possible. That name belongs properly to something higher, something towards which we must work, if civilization itself is not to decay. In a true society every man should have his place, and only the

wrong-doer should suffer. In a true society there could be no such paralysis of human industry as we have witnessed for some years past, when idleness has been tried as the only remedy for poverty; but full proof would be made of the productive powers of nature; and it would then be seen how bounteously she provides for her children. "Can such things be?" many will be prompted to ask. Most assuredly they can. Let us but once settle it in our minds that such a reorganization is desirable, and the belief in its possibility will soon follow. The wish is not only father to the thought; it is quite as often father to the power that brings its realization. Education, I hold, should have a decidedly social aim. Unless it has, it will only tend to the accentuation of personal desires and motives, and will give us a generation of hard calculators, whose calculations, shrewd though they be, may some day be thrown into terrible confusion.

"That the study of foreign languages is a necessary part of a liberal education is a proposition which few intelligent persons will at this day dispute. The records of thought and knowledge are many-tongued; and, therefore, as a means of encyclopædic culture—of that thorough intellectual equipment which is so imperiously demanded of every scholar, and even thinker, at the present day—a knowledge of foreign literature, both ancient and modern, is absolutely indispensable. * * * Your first duty, however, is to acquaint yourself with the learning and literature of your own and the mother country. Our English granaries will, of themselves, feed a long life. When

you have mastered the giants who wrote in your mother-tongue — when the great works of Chaucer, Shakespeare, Hooker, Bacon, Milton, Swift, Wordsworth, Byron, Mill, Tennyson, and all our other representative authors, have passed like the iron atoms of the blood into your mental constitution, it will be time to go abroad after "fresh fields and pastures new." But do not, we beg of you, indulge the foolish ambition of becoming a polyglot when you cannot write a grammatical letter in your mother-tongue, and have never read a page in half of its best writers." — *From Mathews' "Hours with Men and Books."*

LETTERS ON THE EDUCATION AND EMPLOYMENT OF WOMEN.

BY AGNODICE.

LETTER I.

DEAR CLYTE,

I HAVE not forgotten my promise to commence a correspondence with you on my return from abroad. Yes! your Agnodice (for I still keep the old name you gave me at school) is at home again with her brother and sister.

My brother has already settled down to his books and his studies, and his good, kind wife is immersed once more in her housekeeping affairs. To him, whether or no his last work will be favourable reviewed, is the most important consideration in the world; to her, the rise and fall of eggs or butter is the topic of the utmost importance. As for myself, I am still, dear Clyte, revolving in my mind the idea of following some profession. I know you are orthodox enough to be shocked at this, even in the face of the advanced views of the present day, but I shall meet your arguments, and I hope conquer them.

I am young, strong and determined. No one has a claim on my time as your delicate mother has on yours. Why should I be obliged to give up to Society, to whom, as yet, I owe nothing, the most active and vigorous part of my life? Is the aim of my education only to be accomplished by a constant round of garden-parties, balls, and receptions,—if so, why have I been taught anything else, but to read, write, dance, enter a room

gracefully, and chirp a feeble song to a wandering and uncertain accompaniment? These acquirements would have been enough to have given me a footing in what is called Society. No! I cannot submit to that kind of thing; I must have a purpose, a life-work, a determined end in what I undertake. Such a purpose my sister sets before me in marriage! It is no wonder marriages are so unhappy, when they are put before girls as the end, the thing to be achieved, "the one thing needful" in their lives. When we struggle for a thing, when we fight for a prize, at least we expect, with reason, that the thing shall be worth the winning. If, in archery, we gain a golden arrow, we have a right to be disgusted if the prize turn out to be of counterfeit metal, and the arrow cannot expect to be treated with the admiration and respect that would be given it if it were genuine. This is truly the way our future husbands are held up to us, and the result must often, of course, be disappointment and despair.

Oh! the shameful of those odious expressions—"playing her cards well," "*making* a good match," "setting her cap," &c. I burn with anger and indignation as I write them. Do you remember what John Stuart Mills says?—"What marriage may be in the case of two persons of cultivated faculties, identical in opinions and purposes, between whom there exists the best kind of equality, sim-

ilarity of powers and capacities with reciprocal superiority in them, so that each can enjoy the luxury of looking up to the other, and can have alternately the pleasure of leading and of being led in the path of development—I will not attempt to describe. To those who can conceive it there is no need; to those who cannot, it would appear the dream of the enthusiast. But I maintain, with the profoundest conviction, that this, and this only, is the ideal of marriage; and that all opinions, customs and institutions which favour any other notion of it, or turn the conceptions and aspirations connected with it into any other direction, by whatever pretences they may be coloured, are relics of primitive barbarism."

So with these opinions you will not be surprised when I tell you I seriously intend studying for a profession, and I think I have chosen the medical. I am of course aware that at present women are not admitted to degrees, and that when they practice, it can be only as quacks, but I shall go through with the regular curriculum, as so many have done, in the hope that by the time I have passed all my examinations, these disabilities will have been removed.

Now for your arguments; I believe I know them already, for how often have we discussed kindred subjects in our school-days, and I see before me now your sweet, grave, earnest face, much more persuasive than your judicious, but excuse me, not very convincing arguments.

Strong-minded, independent women are perfectly horrid, you say; they wear queer clothes, and cut their hair short, and their boots are so very, very large and thick, and they talk loudly, and stand with their hands behind them, and are altogether most objectionable. Yes! some of them are I must own, and they do a great deal of harm to the much larger class

of women whose only desire, as one of them has said, is "to use the reason God has given them to form a just opinion on the circumstances around them," by exciting a prejudice against what are the supposed attributes of every thinking woman.

But you must remember that whenever there is a re-action, there will be found fanatics. It is unfair to call all Scotch clergymen-Philistines, spoilers and mistaken zealots, because John Knox defaced altars, and mutilated carvings in his intemperate, yet withal lofty, because unselfish, passion for Reform. And it is equally unfair to ascribe to all earnest women who desire to work and not to talk, the rabid phraseology, such as the wish for the "painless extinction of man," &c., frequently indulged in by these *soi disant* strong-minded women.

When I was at a ball in Paris, I met a specimen of this class; she was a practising physician with a foreign diploma. She was dressed as much like the "abhorred race" as was possible. She wished to dance, but alas! there arose a difficulty in the minds of all present whether her partner should be a lady or a gentleman! This kind of thing is horrible and no one feels more strongly on the point than the true asserter of Women's rights. I must not however forget to mention that the lady in question was spoken of as *Monsieur la docteur*!

Pray believe that a woman may study any or all of the sciences, may deliver lectures and write books, and may even enter professional life, and yet may be undetected in the streets by any peculiarity in her dress or walk; she may speak and act like a lady, and even, most astonishing to relate, may order a dinner, and dispense with grace the rites of hospitality.

I see you prime your mouth now for all the world as if "prunes and

prisms" were coming, but you murmur instead—womanly modesty, womanly virtue. Can a woman keep these divine attributes when she goes out into the world to fight her way and to win fame and position? I ask, why not? Are seamstresses and charwomen less virtuous and modest than their neighbours, because they have to fight their way and win their fame (such fame as it is) in the struggle for bread? Are the Turkish women, veiled and secluded as they are kept, more virtuous than those of European nations? Are we the worse for going out for a walk, when we are told to "put our virtuous indignation in our pockets," and submit to be regarded as pictures on exhibition? Are we the worse for reading our Bibles or our Shakespeares, or must these and all books written before this ultra-delicate nineteenth century be Bowdlerized before being placed in our hands? Is our innate modesty so small a thing, of so frail a material, that it will bear no contact with externals? If you admit it is, I answer that I deny that a woman possesses either virtue or honour who cannot without harm read and live and work as good and holy men have read and lived and worked. Bear in mind, too, that the women who enter into public competition with men, go armed with a higher education, mental, moral and physical, than those have whose thoughts never soar above the contemplation of a comfortable home and plenty of excitement.

You think the movement is a new-fangled idea, interesting to me, perhaps, because of its novelty. Are you aware that our old friend Plato calls upon "both sexes indifferently to associate in all studies, exercises, offices and professions, military and civil, in his republic?" This is even rather farther than we go, for at present (whatever the future may give us) our physique is hardly capable of un-

dergoing the hardships of a soldier's or a sailor's life. Montaigne affirms "that males and females are cast in the same mould; and that education and custom excepted, the difference between them is not great," and a modern poet sings,—

"Female and male God made the man:
His Image is the whole, not half;
And, in our love, we dimly scan
The love which is between Himself."

It is ridiculous to hear people exclaiming, do you want to see women in parliament? do you want to have women as judges? and the like.

We want to fit ourselves for any office; whether we shall be called upon to fill those positions is quite another question, and one thing is quite certain, that no woman is likely to be raised to any high office unless she is eminently fitted for the place. At present what women have to do is to cause their standard of education to be raised. When this has been done for some generations, then will be the time under the new *régime* to inquire what posts of importance they are capable of filling. We do not demand of a boy the strength and power of a man, or wonder why with all his potentiality of force he cannot rival at once the wisdom of an ancient, and yet the question is constantly put (with the belief that women expect all this of and for themselves), whether they do not desire *now* and *at once* to undertake work requiring intimate knowledge of the laws of political and social economy? You think, perhaps, I underrate the education of to-day. When I see hundreds of women who might vote and who do not, who might work and who do not, who have talents but hide them in a napkin, and candles, but bury them under a bushel; women who do not want to be represented in the parliament of their country, who are perfectly indifferent under the discussion of the most cry-

ing evils demanding social reform, I think I do not exaggerate the need of a higher and wider scope of thought.

Women think by their indifference and feigned humility they win admiration and affection, which is all many of them seem to require. They are not conscious of the intense selfishness that makes them shut their eyes and seek only to live and let live. For it is undoubtedly selfishness and indolence that oblige them to forget how many hundreds of women are struggling for maintenance. They call them sisters—the family likeness is not very great—and these “sisters” have their bread to earn, but also nothing to earn it with, they have been brought up to no profession, apprenticed to no trade, yet they are bound “somehow,” and few care how, to rough it in the dreariest sense of the word and to support themselves and often their families.

And yet we are told there is no need for women to adopt any calling!

Does it not show that reform is much needed when so many of us are determined to face opposition, and to shock society by entering the professions?

It is not nice and pleasant to shock people, as some seem to think it is. On the contrary, it is very disagreeable, and a woman requires to be quite confident that she is doing not only a right and good thing, but *the* only right and good thing under the cir-

cumstances. It is far from pleasant to be called names, and to be treated with contempt, and it is still more trying for others to think that we hold ourselves superior to all around us. We do not consider ourselves justly open to this charge; true, we are forced by the very condition of things to be self-assertive, but we do not wish to be conceited.

Others who do not care to march abreast with us in our movement, may have as great or greater stores of learning, but I must say that such knowledge is of very little value unless it is made use of. It seems to me time thrown away to study sciences and arts assiduously, but never to make any account of them, and I have often wondered at men and women whom I have been told have read a great deal, and yet talk nothing but the veriest small talk. What have they done with all this acquired knowledge, I ask? But that is never discovered, till one cannot help solving the riddle by being tempted to believe that their researches have begun and ended with the titles of the books.

I shall wait impatiently for your next letter, after which I have more to say on this subject.

Till then digest this sentence from Montaigne, *à propos* of what I have just now said:—“Learning is in some hands a sceptre, in others a rattle.”

Your old school-fellow,

AGNODICE.

THE TEACHER'S WORK IN THE UNIVERSITY AND THE PUBLIC SCHOOL.*

BY THE REV. SAM'L S. NELLES, D.D., LL.D., PRESIDENT VICTORIA UNIVERSITY,
COBOURG.

MR. PRESIDENT AND GENTLEMEN
OF THE CONVENTION:—

I HAVE yielded to your earnest request to offer some remarks on this occasion, chiefly from a desire to show my sympathy with you in the common work in which we are engaged. For the work of higher education and that of intermediate and elementary training is one. The Universities are not only fed by the schools below, but in a manner tethered to them, dependent for their progress and power upon the preparation which has already been made for the wider and more finished culture. If the work of the schools be poorly done, or turned in bad directions, the entrance examinations of the Universities will be proportionately poor, and the subsequent academic career made to suffer. The schools must rise to touch the Universities, or the Universities must descend to reach the schools. It is but a few years since John Stuart Mill had to use the following language: "But schools of a still higher description have been, even in Scotland, so few and inadequate, that the Universities have had to perform largely the functions which ought to be performed by schools. Every Scottish University is not a University only, but a high school, to supply the

deficiency of other schools. And if the English Universities do not do the same, it is not because the same need does not exist, but because it is disregarded. Youths come to the Scottish Universities ignorant and are there taught. The majority of those who come to the English Universities come still more ignorant, and ignorant they go away." Complaints are often made of the low standard in the American Universities, but our American neighbours have made good progress with the materials in hand, and all premature attempts to build beyond the time have failed. Dissatisfied with the ordinary type of American Universities, some notable efforts have been made to establish something more imposing, something to vie with the German Universities, but it has usually been discovered that Harvard and Yale, Princeton and Amherst, are still in keeping with the national needs. The German University is only made possible by the German Gymnasium, and to over-leap the latter and grasp at the former, is to climb without a ladder, "to leap at stars and fasten in the mud." The best impetus and power of advancement that has been given to Canadian Universities during the last few years, must be accredited to the improvement that has taken place in our

* This Address, which was delivered extemporaneously to the teachers of Northumberland County at their late Convention, has been greatly condensed and almost mutilated in writing it out, so as to bring it within reasonable limits for publication in these pages. Only the urgent request of others could have induced the writer to furnish, in this form, what was prepared very hastily, and was only intended as a word of encouragement to the teachers assembled at the time.—S. S. N.

elementary schools, and especially to the increased efficiency of our High Schools and Collegiate Institutes.

On the other hand, there is a similar dependence of elementary and intermediate education upon the work of the Universities, and in fact upon all higher learning. This holds good both of the *matter* and the *methods* of instruction, although the fact is one that the mass of people seldom recognize. It is assumed that the colleges need the schools, but that the schools could do well enough without the colleges. Never was there a greater mistake. Quite recently a public complaint was put forth by one of our most efficient and prominent educators against the endowment of a national University in Ontario, on the ground that the general wants of the community are sufficiently provided for by the preparatory schools, and that the University, being chiefly of service to professional men, should be supported by those who reap the advantages. This is hardly sound doctrine, and I hope it will not spread. Doubtless the endowment by the State of one single college is a very one-sided policy (what, by way of legitimizing the common phrase, we may call a "one-horse" policy), and inflicts serious disadvantages and injustice upon the other outlying Colleges, but for all that, even a member of an outlying College may be permitted to deprecate the state-abandonment of higher learning. The public good would appear rather to call for the support of several Colleges than the disendowment of the one. However this may be, it is all-important to remember the inestimable benefits conferred by these higher institutions, and by all men of science, not merely upon the professional classes, but upon the people at large, and especially upon the work of the intermediate and elementary schools. The schools indeed teach only rudi-

mentary knowledge, but what is elementary now was not always elementary, nay rather, it is the simplified and popular statement of what was once scarcely known at all, or known only to men of profound thought, and discovered by them after many years of laborious investigation. Nor would their laborious researches have been crowned with success, but for the tentative efforts and frequent failures of a long line of predecessors. The torch to be handed on must be kept always burning. The rotundity of the earth, the Copernican astronomy, the law of gravitation, the circulation of the blood, the existence of an American continent: these are all elementary matters now, and more or less inculcated in our common school-books, and implied in the ordinary speech of the common people, but they were once hidden in darkness, and were only made visible by the light of intense thought, focalized long and earnestly in the distant watch-towers where men of genius have stood through the chilly hours watching for the dawn. Euclid and Kepler, Copernicus, Newton and Faraday, these are the men who have snatched from heaven the immortal flame that burns so brightly where our busy youth first grow warm with intellectual life. And we are not to suppose that this great law of intellectual heritage is abrogated. The hills still water the plains, and far up the cold mountain side may be now rising the rill, that, by and by, as a majestic river, is to sweep grandly on across the continent, with its curves of beauty and its fertilizing power. In the endowed halls of science, or in the heroic exploring expedition, still toil the men who are to make new discoveries "for the relief of man's estate." It was no sordid aim that sent Livingstone and Stanley to open up the recesses of Africa, but already the merchant scents from afar

the fragrance of new fields of commerce. Nor do studies which yield the quickest return always yield the largest. The manifold relations and ultimate effects of the great secrets of nature are seldom obvious even to the man of genius, and what seems purely speculative or matter of idle curiosity, has often been found pregnant with vast results, both for the convenience and the ornament of life. Here also the promise holds good, he that seeketh findeth, but oftentimes findeth better than his hope. Saul, seeking asses, found a kingdom, and the alchemists seeking gold sometimes made discoveries more precious than gold. The so-called practical man has doubtless his uses, but one of his uses is to eat, at the bottom of the tree, the fruit which the man of genius and high culture hands him from the sunlit boughs beyond his reach. The Baconian clamour for "fruit," which Macaulay has so partially interpreted, is a natural cry, but is, after all, the cry of a helpless babe, to which only mother-wit of a very rare order can give the answer, otherwise the babe remains empty-handed and empty-mouthed,

"And with no language but a cry."

Let those then who value the common schools and the common weal, learn also to value all higher learning, and not look grudgingly on money expended for Colleges and Universities. The teacher that was wont to stand uncovered before his pupils, seeing their future greatness in the dormant capacity, was touched with a genuine and far-seeing gift of reverence, but the mechanic, or farmer, or sailor, who should always uncover in view of a college dome or magnetic observatory, would have an equally commendable sense of "the eternal fitness of things." To such minds these things may seem cold and distant as the clouds, but the distant

clouds that seem to go drifting coldly and idly by, will in due time fall in refreshing floods to quicken the growing harvest and to swell the autumn fruit.

As regards *methods* of instruction, there is the same law of dependence. Dr. Johnson indeed declared that no further light could be shed on systems of education, and that the subject was as well understood as it ever would be. But Dr. Johnson, being a great man, sometimes made great blunders, and this is one of them. Against such high authority we have the authority of a host of modern educators, together with the fact of many educational improvements introduced since the time of Dr. Johnson. There is scarcely any branch of learning that may not be made to throw light on educational methods. Physiology, psychology, ethics, æsthetics, political economy, history, each one comes laden with a contribution. Nearer, therefore, to the truth than this dictum of the great lexicographer, would it be to say that education is an inexhaustible science, limited in its developments only by the intuitions of genius and the progress of the race.

And now, Mr. President, I may refer to another bond of union or point of agreement between us, and that is the somewhat galling bond of poverty. It does seem a little strange that we teachers, who stand so high as public benefactors, should stand so low in point of remuneration. The chief waiter of a large hotel receives higher pay than a Head Master of a High School, or perhaps, a University Professor. We learn on high authority that the most lucrative office in the University of Oxford is that of College Head—with the exception of the *cook*! This disposes one to exclaim with Carlyle, "On cookery let us build our stronghold, brandishing our frying-pan as a censor." It is indeed not easy to be a cook, and cater to the

fastidious palates of a variety of guests, but it is just as hard to provide mental pabulum for slow-digesting pupils; and at the same time please the ill-instructed fancies and niggardly dispositions of trustees, parents and rate-payers. Let us console ourselves with the recollection of the nobleness of our work, and the excellence of our company. All the world's greatest benefactors have found that the reward of virtue is not bread. But it is nobler to diffuse knowledge among the people than it is to wear soft clothing in king's palaces. Let, then, the school-teacher, like the preacher and the poet, rejoice in the high honour of representing that which, being more precious than rubies, is not to be rewarded by secular emoluments.

Let no one wonder that I have named the teacher along with the preacher. They are as closely allied in their work as in the scantiness of their remuneration. We may differ as to the prominence to be given to religion in the school-room, but no Protestant Christian can doubt that popular education is indispensable to a pure and progressive Christianity. "No savage," says Whately, "can be a Christian." It is certain that no Christian can long remain a savage, and equally certain that an ignorant people will always tend more or less to narrow and adulterate the purest religious faith. The sacred element will take the hue and the flavour of the vessel in which it is lodged. *Quicquid recipitur, recipitur ad modum recipientis.* Pulpit and pew, church and school, theology and literature, act and react upon each other in a thousand ways. We cannot, indeed, affirm that culture and refinement will heal the leprosy of the soul, but they will hold in check the demon of superstition, and afford the most natural and proper alliance for the religion of Him "in whom lie hid all the treasures of wisdom and know-

ledge." We shall find our security for the State, not of necessity in combining within the same place and person the two-fold office of spiritual teacher and secular, but in providing both in due efficiency for all classes of the people :—

"Nor heed the skeptic's puny hands,
While near the school the church-spire
stands,
Nor fear the blinded bigot's rule,
While near the church-spire stands the
school."

I think the time has come when we Canadians must feel more than ever how deeply urgent is the need for calling into fullest play the intellectual energies of our people. Great questions are upon us. Sometimes within a few hours we are called upon to give our verdict upon controversies affecting the highest interests of the State. Only a thoughtful, well-informed people can govern themselves, as we are called to do. It is the schoolmaster alone that can make self-government possible, or infuse something like rational method into the madness of universal suffrage. "All glories," says Macaulay, "fade before the glory of the statesman," but when statesmen (or rulers at any rate) are made and unmade by the voice of the crowd, there is danger lest the glory of the statesman should fade before the glory of him who knows best

"To fool the crowd with glorious lies."

It is the schoolmaster that gives the true statesman power to save the State. Let the marble monument proclaim in every land the glory of the statesman, but let the people tread lightly, too, upon the green sod that wraps the grave of the village schoolmaster. All honour to the patriot who falls in the fight for freedom, but history teaches only too well how little avail the victories of the battle-field, without intelligence and virtue to preserve what battles have won. It is chiefly

from within that nations perish, and in the humble school-house Canadians must build the bulwark to guard the precious heritage of constitutional freedom, which statesmen have matured, and for which heroes have died. Nor is heroism altogether wanting from the teacher's life. There are many kinds of heroism, and not the least to be admired is that which lies back in the quiet and obscure places. Nay, it is often easier to die amid the blare of trumpets, the waving of banners, and the high enthusiasm of war, than to toil and suffer bravely on through the long years of poverty and neglect. Wherever true work is done, wherever pure motives prevail, wherever, amid circumstances of trial, privation, and discouragement, the heart and hand fail not, but with self-sacrificing fortitude struggle patiently on to the required end; there always is heroism. Such a lot is often laid upon the teacher, but let him labour in faith and hope as one who builds more grandly than they who shaped the Parthenon, or piled the Pyramids. Of all the fabrics reared by man, what can rival his in beauty, in value, or in imperishability? Who else on this earth can build above the storms? Mutation and decay sweep round the globe. History itself is but a kind of epitaph. While we build we die, and our buildings crumble upon our graves. Pictures fade, statues are broken, or buried, philosophies shift and reshape themselves like the visions of a kaleidoscope, cities and civilizations break into dust, and if the Pyramids still raise their massive forms above the Nile, it is only to mark the vanity of kings and the pride of power—the melancholy remains of a departed glory,—a memorial, but a tomb. And what is gone comes not again. Hannibal and Cæsar may indeed have a resurrection, but the ceremonies of

old Carthage and Rome shall never be burst asunder. But within the immortal spirit of man, where the teacher carves his lines and moulds the character, the winds and the floods have no power. The teacher does indeed build above the storms, and may defy the pitiless pelting of the rains. His marble temple shall never be "moss-grown nor frost-flung." Goth nor Vandal shall mutilate the stones; the drifting sands of the desert shall not cover them; but, all untouched by "Time's effacing fingers," shall they abide from age to age, taking on ever-new grandeur of outline, and ever-new light of beauty. The familiar illustration of Addison, in which he likens the work of the educator to that of the sculptor on the marble, will never lose its aptness or value, but how far short after all it falls of doing justice to the teacher's mission. It is counted high praise to say of the sculptor that he can "*almost* make the marble speak." He gives us the simulation of a man; but how much greater and nobler to give us by education the man in reality! To evoke from the rude mind the power to think, to feel, to imagine, to enable it "to borrow splendour from all that is fair, to subordinate to itself all that is great, and to sit enthroned on the riches of the universe!" The well-shaped statue lifted to a niche in some palace or famous abbey preserves the memory of the dead, and gives immortal fame to the sculptor; the living spirit, endowed with illimitable powers of development, chiselled by a finer touch, and fashioned by an inward growth, is raised to a sphere beyond the palaces and galleries of earth, to be radiant forever with a celestial light, vocal forever with a celestial song, and employed for ever

"In such great offices as suit
The full-grown energies of heaven."

VIRGIL FOR THE ENGLISH STUDENT.

BY THE REV. C. P. MULVANY, M.A., CARRYING PLACE.

THE phase of classical culture which has obtained of late years has made Greek and Latin more unapproachable than ever to other than University Students. For the classical languages are now studied more for their form than their matter—more for grammatical and philological criticism than for the appreciative culture of the literature itself. Yet surely the latter at least ought not to be neglected. Its refining influence is the most permanent benefit to be derived from the classical part of a College course. And it would enable those whose education is for commercial or other purposes, confined to what can be read in English, to obtain at least this part of the advantage of a University training, if adequate representatives of the great monuments of classical culture were within their reach. Mr. Matthew Arnold has pleaded in his lucid and appreciative essay on *Translations of Homer*, for a version of the *Iliad* in the measure of the original. To his arguments may surely be added the advantage to the purely English student of seeing the movement of the Greek poetry represented in a measure like that of the original.

All that has been said of Homer applies, of course, to Virgil's great epic. The latter, indeed, is perhaps more easily appreciated. It has contributed important influences to European thought, and Christian popular eschatology (as it is called) is under

no slight obligations to the description of the descent into Hades of the hero of Virgil's poem.

Such a work as I desiderate would be published in cheap form. It would commence with a brief popular sketch of the Poet, of his position in classical literature and that of the Christian decadence. It would not puzzle the student with dactyls, spondees or cæsmas—even the word "hexameter" should be eschewed. It would simply be stated that the versification was a rhythm, identical as far as possible with that of the original, and that the order and literal force of the words were given as nearly as might be.

Explanation should be added of the localities, and of the chief oft-recurring names for Greek or Trojan. Some of the more striking portions of the entire poem, as the adventures of Æneas, might be then given in one book at least, to be rendered from beginning to end. For this purpose the second might well be chosen—its subject, the destruction of Troy by fire, stands complete as a picture, apart from the rest of Virgil's poem, and the growing force of the tremendous catastrophe increases in interest from the time that the midnight spectre announces to the son of Venus that all is lost, and through the hurry to and fro of midnight battle, to the tragic dignity of Priam's death; till at last the hero, undaunted by mortal arms, shrinks in terror from the vision, like that of the young man "whose eyes Elisha opened"

in Hebrew story—of the terrible powers of Heaven hostile to Troy. I venture on a few specimens of the manner in which this might be done, so as to bring the force and flow of the original before the mind of the English student, and it might be hoped be of use to the classical student in our Canadian Universities in the endeavour to translate the Latin into literal, and at the same time not slovenly or inelegant English. I commence with the passage in the second book, when Æneas, startled from sleep by the ghost of Hector, realizes the fact that all is lost:

Meanwhile with manifold noise the walls of
the city are mingled,
Nearer and nearer, altho' the home of my
Father Anchises
Stood retired from the street, and screened
by shrubberies round it,
The loud sounds grew clear, and the clashing
of arms is apparent.
Out of my sleep I start, and up to the roof
of the building,
Climb by a stair, and stand with ears that
eagerly listen—
As, when amid the corn, a flame, by the furious
south wind
Falls in a rapid stream in torrent force from
the mountain,
Floods the fields, the blooming crops and
toils of the oxen—
Sweeping the woods in its way, and the
startled shepherd, beholding,
Stands overwhelmed at the crash from the
lofty cliff as he hears it.

—Or, take the passage where Æneas has roused a body of Trojans to engage in resistance to the victors—

Madness came with my words, then wild as a
herd of the war-wolves
Wrapped in a cloud of the night, whose
bellies cruelest hunger
Stings in their mad career, whose whelps in
their dens that expect them,
Wait with dry lips at home, just as through
arrows,
Wend we to certain death, and, in the midst
of the conflict, through armies
Hold our way which night with sable wings
o'ershadows.

Or, when after a first success, their ranks are disorganized by the attempt to rescue Cassandra—

Lo ! by her loose hair haled, the virgin
daughter of Priam,
See we Cassandra dragged from fane and
shrine of Minerva,
Raising in vain appeal her ardent eyes to the
heavens.
Only her eyes, her delicate hands the cords
were confining.
This was a sight that Coræbus could not
bear in his passion,
And on their midmost array he fell, deter-
mined on dying,
All follow on ; we charge mid foes that
thicken around us.

The most desperate fighting goes on around the Palace of Priam. Then a minute description is given of the Roman method of storming a wall held by the enemy :

See we the gate beset by shielded stress of
the stormers—
Ladders cling to the walls, are close prest in
to the door posts.
Climb they on steps, their shield with the
left hand turned to the missiles.
Thus secured, with the right they grasp the
battlements' summit.
Then do the Trojans in turn the towers and
tops of the houses
Hurl on the foe, with these as they see the
ruin impending
In the despair of death they seek the means
of resistance.
Beams adorned with gold, ancestral heir looms
of honour
Roll they down.

But Pyrrhus or Neoptolemus, son of Achilles, leads the Greek.

Hard by the outer porch and the very thresh-
hold is Pyrrhus,
Proud in his bright array of weapons and
glittering armour,
As when the viper on venom fed, comes into
the sunshine
Whom in swollen sleep cold winter long
was concealing,
Now having cast its skin, renewed in youth as
in beauty,
Writhing its scaly back, it rolls with crest that
is lifted
Nigh to the genial sun with three-forked
tongue as it flickers.

Then when the palace is taken and Priam slain, comes one of the most striking passages of the poem, in which, by the aid of Heaven, the hero

has his eyes opened' to the agency of superhuman powers of evil.

Then I look back and see what force is left to support me.

All had gone, worn out, or with a bound from the ramparts

Cast their wearied limbs, or to the fires had resigned them.

Now I alone was left, when, by the temple of Vesta,

Silently lurking hid in a secret seat for asylum, Helen I saw—for now the flames to my wandering footsteps

Give bright light, as I cast my eyes on all that is round me—

She who the Trojans feared her foes for Troy that is captured,

Nor with less cause the Greek, and wrath of the lord she had injured,

Hid herself there and, hated thing, sat close to the Altar.

Flashed the fire in my soul, and anger prompts in a moment

Vengeance for fatherland and fit reward for the guilty—

—Goes she to Sparta safe, to her native home at Mycenæ,

Then like a Queen, to move in royal grace to a triumph,

Husband and home, and sons and parents there to revisit,

Girt with Trojan girls and Phrygian slaves to attend her.

Priam be slain with the sword, and Troy be sunk into ashes!

Shores of the Dardan land be soaked with blood, and so often!

Never! altho' it gain scant praise to punish a woman,

Nor is there ought of fame to win where this is the conquest,

Yet shall it be to my praise to have crushed the thing that is evil,

Giving to guilt its meed, and sating fatherland's ashes.

So I exclaimed, and still with maddened mind was borne onward—

When to my gaze, before not seen, so beautiful ever

Shone amid cloudless light my goddess mother before me.

All-divine she seemed, and as to the dwellers in Heaven,

Such and so fair revealed, and with her hand as she held me

Stayed she my steps, while thus with roseate lips she addressed me:

Son! what grief can prompt in thee such measureless anger,

* * * * *

No fit mark for thy hate the fatal beauty of Helen.

Blame not Paris for this; the Gods, the Gods, in their anger

Wrought this ruin, and brought on Troy this terrible ending.

See, for I lift the veil which from the eyes of a mortal

Hides the world unseen, and thou, refuse not obedience

Due to a mother's word, nor scorn to bend to her bidding.

Lo! by the shattered piles, and rocks from rocks that are rifted.

Here where the smoke upcurls with waves of dust intermingled,

Neptune shakes the walls, and deep upheaved with his trident

Smites foundations down, and from its centre the city

Far and wide overthrows. By the Scaean gate in her anger,

Juno sits supreme, and from the ships to the foeman

Girt with the sword she calls.

* * * * *

Said she, and shrouded her form in densest shades of the darkness.

Terrible forms appear, and boding ill to the Trojans

Powers of the mighty Gods!

If in our Universities more stress were laid on the rendering the Greek and Latin authors into not merely literal, but adequate and correct English, much more might be permanently assimilated. Even to the English student access to an English version of Virgil, not translated into the manner of Pope, nor of Chaucer, nor of Scott, but aiming to reproduce the rhythm of the original, and as far as possible the spirit and flow of the original words, will give some flavour of that old wine of the world's culture, of which those who have drank deepest of the new, will avow that "the old is better."

THE STUDY OF HISTORY IN SCHOOLS.

BY J. HENDERSON, M.A., ST. CATHARINES.

AT the present day, when so many subjects of study have been introduced into our School programmes, different opinions will always be formed about their respective merits. There seems, however, to be a consensus of opinion as to the importance of the subject under consideration. If intelligently taught, history ought to form a very important factor in a sound elementary education. We are, however, forced to the conclusion that the study is very imperfectly pursued in the great majority of our schools. This arises from the fact that it is often improperly treated of in the ordinary manuals; but perhaps the chief cause is the tendency to cram under the pressure of examinations. The latter is a complaint universal in its extent in Ontario, and the only remedy will be to remove the inducements given for cram work by educational authorities. The great end and aim of all education is not so much *what is studied* but *how it is studied*. The formation of correct habits of thought is infinitely more valuable to the pupil than the mere knowledge imparted. To induce and foster this accuracy—to train the pupil to think with precision in forming his conclusions—must be the constant care of the instructor of youth; and he who has not secured this is justified in forming the opinion that there is something radically wrong somewhere. There is nothing more to be deplored than the amount of “nebulous”

knowledge that we find prevalent in our schools in nearly all subjects. The vicious habit of indistinct perception is not shaken off when the school-boy throws aside his satchel and steps out into the world to take his place and fight his way for himself. It clings to him often for life, and has a direct tendency to mar his success and hamper all his efforts. A pupil trained, under such circumstances, must unlearn these pernicious habits if ever he aspires to anything worthy of ambition.

In reading over the report of the Sub-Examiners for the Intermediate, we are not at all astonished to find that history is gradually becoming a subject for cram. It would indeed be a miracle were it otherwise. By prescribing for the lower forms of our High Schools so much to be overtaken, *some subjects* will naturally receive undue attention to the detriment of others, and this is directly caused by the amount of work to be gone over in the limited time that most pupils have at their disposal in preparing for an examination. For the Upper School special periods of history are chosen, while the pupils of the Lower School are assigned the whole of English History. If these conditions were reversed, the result would be beneficial to all concerned. With so much placed on their shoulders, the pupils are not to be blamed if examiners complain of the ludicrous jumbling together of facts, dates, and

persons; but the system that perpetuates and directly aids and abets such a state of matters must be censured. The crude and unscientific answers that we often listen to arise from a dim, hazy perception of the subject. With many teachers the "be all" and the "end all" of history seems to be a dry narrative of events, strung together with as little connection as the buttons on a little girl's magic string. A detailed account of battles and sieges with the exact number of the killed, wounded, missing and prisoners, the paraphernalia of a grand court, are to them matters of most absorbing interest and of the utmost moment, while the real life of a nation is kept in the back ground or left out of the picture altogether. When Macaulay gave to the world his history, and led men to examine life in the cottage of the labourer as well as in the palace, he taught a lesson too often overlooked. The dependence of one class of the community on another must fully be understood in estimating forces whose outcome exhibits itself in battles or sieges. The events which form the great points in history can be properly read only when we have investigated the causes which led to them. A matter apparently of trifling importance often becomes the nucleus of a system that develops into a great principle in history. The fall of an apple, by an ordinary observer passes unnoticed, but it suggested to Newton one of the deepest principles in philosophy. The minutiae of history in the same way form the key-notes of the great problems that arise from them. Our school histories generally are deficient in this respect, that they often treat of as subordinate, matters that ought to occupy the first place in investigating the life of a nation. The part of English history before the reign of Henry VII., under such treatment, is anomalous and perfectly

inexplicable to the casual observer. One would imagine that no one lived then but mail-clad Knights, whose special duty was to kill and rob indiscriminately. The great change that spread over western Europe during his reign and that of his successor, is unaccountable unless we deal with the contemporary history of the period. The fall of Constantinople, by which the Greek literature of the Byzantine Empire was disseminated throughout Europe, was one of the main causes of the great intellectual strides that were then made. But, strange to say, our histories in nearly every instance leave such facts out of the question. Contemporary history is invaluable as a means of explaining many of the great changes that occur in a nation's career. Again we may also refer to the Crusades as another instance of flagrant omission. The many and varied influences that they had on the national life of England are passed by with a mere reference. Instances of such omissions, which every teacher deplores and laments, might be multiplied without number. Our historians are apt to form theories of their own, which are thoroughly baseless, to explain events, the evident reasons for which, are furnished on merely glancing at the contemporary history of other nations. The isolated character of the nations of the ancient world, or of mediæval Europe, is a thing of the past. Mankind are gradually coming more and more to feel their dependence on each other. The modern inventions of steam and telegraph are assimilating countries that hitherto have been widely different, socially and intellectually. By the great tidal waves of history we gain a comprehensive and enlarged view of the great problems that are being worked in different nations under various circumstances. These are assuredly of much more importance than the death of one king and the accession of another.

As is the case with many other branches of learning, History cannot properly be isolated; it must necessarily encroach on the domain of Physical geography for us to thoroughly understand the influences at work in building up a national character. We must inform ourselves of the climate in which the inhabitants live, the mountain ranges that traverse the country, the rivers that form the avenues of trade, the seas that lave the shores, and last, though not least, the natural products that supply the necessities or the luxuries of life. Without this additional information our knowledge must be cramped and confined; and it is a matter of regret that this subject, evidently so important, has been practically left out of our studies altogether. Physical geography is undoubtedly one of the most important as well as one of the most interesting subjects that can engage the attention of youth, and why it should be practically ignored has always seemed a grievous mistake. The neglect of it often causes the most egregious blunders, and most unscientific notions of important facts. Breadth and accuracy of thought—the great principles of generalization—can be formed only when we obtain a comprehensive view of the dependence of the one subject on the other. A most mistaken idea seems to prevail—that any subject to be treated in a scientific manner demands advanced pupils. There can be no greater mistake. There is a science in teaching the very elements of a subject, and in these very preliminaries of instruction often the greatest skill and discernment of the teacher are required. No one thanks an instructor for the abil-

ity shown by a few clever boys that he may be successful with. Without him these boys would be clever. But the man who builds a sure foundation, whose motto is *lente festinare*, consistently with solid instruction, fulfils the great end of teaching. The old adage, "Well begun is half done," is of universal application in learning. The great defect in our schools is that there is not enough of this kind of instruction. There would be little difficulty if we had a manual suitable for giving our junior pupils a clear and accurate conception of history—if what may be termed the salient points were selected. It would be a great boon if such a book were introduced, especially into our Public Schools. In these the history labours under this difficulty—the thorough uselessness of our ordinary text-books. If an idea were also given of contemporary history, the skilful teacher would have little difficulty in adding what may have been omitted. At present, the youthful aspirant to a High School course, has to wade through such an amount of matter that he becomes thoroughly bewildered and lost in inextricable mazes. "What is worth doing is worth doing well." The time that a boy spends at school is limited to a few years, in the most of cases, and during that period the best instruction is that which leads him to deal with the leading features of any subject. Instead of becoming the system of Mnemonics, to which it has been reduced, history might become of invaluable worth as a means of mental training and discipline. How far it has become so the Examiners for the "Intermediate" know best.

DEPARTMENTAL REPORTS AND THE INTERMEDIATE EXAMINATION.

BY A HEAD MASTER.

HELD for the first time in June, 1876, the "Intermediate" has now been long enough in operation to justify us in accepting the results as at least an indication of the influence it is likely to have on education. We by no means under-estimate the good it has accomplished: the spirit of competition it has engendered amongst our High Schools and the dread of ignominious failure which haunts the less ambitious of the Masters, have, no doubt, had a telling effect on the *quantity* of the work done since its introduction; but, making all allowances for the interruptions its development has met with in the various efforts of the Department to rectify its defects, we by no means look upon it as an unalloyed blessing. It is a remarkable fact that the opinion of the Teaching Profession is almost unanimously against this "inspectional examination," even in the case of those who, for a few years past, have had, in addition to other advantages, a free semi-annual advertisement in the Toronto dailies. One would think that the consensus of the masters would have had before now some weight with the Minister of Education; it is unfortunately too much to expect most of his advisers to give it the consideration it deserves. We willingly give Mr. Crooks credit for having, in most matters that concern his Department, a sincere desire to benefit education and to prove himself no unworthy successor of his predecessor in office; and, if political

associations occasionally fetter his freedom of action, it must be regarded as one of the unfortunate necessities of his position. The frequent changes made by the Department in the conduct of the Intermediate show also that a doubt as to its advisability sometimes occurs to the mind of the Minister. But no such thoughts trouble those to whose discrimination and sagacity he has a right to look for a reliable opinion, and it cannot but be regarded as a misfortune that educational matters have so long been virtually under the control of men who, on the showing of their official superiors, are more remarkable for obstinate self-assertion than sound judgment.

We propose to reproduce some of the opinions expressed by the High School Inspectors in reference to the Intermediate in the last Annual Report. They discuss with characteristic modesty the main objections that have been raised, and, though they by no means do its opponents justice, we shall take their statement of the case:

"Another objection is that the intermediate examination causes the work of both pupils and masters to be done under too great a pressure. As through the diminution of the pecuniary value of Upper School pupils, and through the operation of other causes, the pressure is gradually lessening, this objection is by degrees losing any force it may once have had. It will, of course, always be the case that in consequence of differences of temper-

ament, surroundings, etc., the pressure which in one case operates as a healthy stimulus, may in another be found unbearable; but it is impossible to provide in a system for special cases. We are not of opinion that the pressure of the intermediate examination is now generally found to be too severe."

In the present condition of matters it is unnecessary to demonstrate the unsoundness of this *ipse dixit*. On the recommendation of Prof. Young, who, as stated by Mr. Crooks, has after about three years' rumination come to the conclusion reached by the profession in as many months, "that the pressure of the Intermediate is generally found to be too severe," it has been decided by the Department to hold, in future, but one a year. We only regret, in the interest of sound mental and physical education, that mitigation of the evil and not annihilation has been the result of the deliberations of the Chairman of the Central Committee. That before long the pernicious effects of the unhealthy stimulus to which our High Schools are being subjected will show themselves still more plainly, we do not for a moment doubt; nor do we hesitate to believe that this tardy concession will pave the way to a complete remodelling of the whole scheme. We do not, however, intend to discuss this important modification of the original plan until the details are before the public; but we most decidedly object to the perpetuation of what will now more than ever become a delusive misnomer—the title "Payment by Results."

The second objection noted by the High School Inspectors is the one to which we desire in the meantime to direct particular attention:—

"The objection brought against the intermediate examination that it fosters cramming is one which, if valid, involves in a common condemnation all

written examinations for the purpose of classifying or in any way determining the standing or attainments of candidates. It has great weight with those whose minds are under the dominion, not of ideas, but of words. Cramming may be defined to mean filling the mind with knowledge which is not so thoroughly assimilated as to become a permanent possession. In this sense the Intermediate Examination has absolutely lessened cramming. The knowledge imparted now is far more thoroughly assimilated than that imparted before it was established. There is, of course, still much learned which is soon forgotten. But is it important that every fact memorized or line of reasoning employed in school, should be retained forever? Should not educators aim rather at training the mind than at making it a lumber room for the preservation of that which were better destroyed?"

After the reception their other "opinion" has met with from the Minister of Education and Prof. Young, who, doubtlessly, know how to estimate the capacity of their subordinates, little importance might be attached to the bristling assertions which form the sum and substance of the above paragraph. Any unprejudiced observer will conclude that the unanimous opinion of the High School Masters, based in their case, we may add, on personal observation and experience—that this system does increase the tendency "to cram" even in the restricted sense in which the term is employed above—is worth more consideration than has hitherto been given it. We know that it has been asserted that most of the Masters are so averse to hard work and the employment of methods of teaching that entail additional labour, that they are willing to press any objection likely to aid in restoring them to that land of Lotos-eaters in which they dwelt before 1876. We have no means of estima-

ting the correctness of this statement; but even had we no other verification of the teacher's view of the question at issue, we should be justified in hesitating to accept it. It so happens, however, that the Sub-examiners' Reports, which appear in the Blue Books for 1876 and 1877, are, to our mind corroborative of objections germane to the one we are discussing. These Reports deal with the subject as a whole, and read in connection with the papers set at the examinations, are a fairly reliable indication—not of the ability and faithfulness of the teachers—but of what they are able to do under the new mode of controlling educational work. But, as we have said, these Reports are valuable for more reasons than those which have prompted their publication.

Our readers are, of course, aware that the subjects for the Intermediate are grouped and valued as follows:—I. Arithmetic, 100; Algebra, 100; Geometry, 100. II. English Grammar, 180; English Composition, 75; Dictation, 45. III. English Literature, 100; History, 100; Geography, 100. IV. (a) Latin, 300; (b) French, 300; (c) German, 300; (e) Natural Philosophy, 110; Chemistry, 110; Book-keeping, 80. It must also be borne in mind that the maximum value of the correct answer to each question has been given on every paper since July, 1877,—a circumstance which is important in tracing from year to year the influence of the Intermediate. Both teachers and candidates in this way know not only what subjects and what departments of subjects it will pay to study, but also what method of study or teaching will enable them to secure the minimum for pass; for the Intermediate has the disadvantage of being simply a qualifying examination. In fact with the data provided, it is almost possible to reduce "Passing the In-

termediate" to the conditions of an exact science. Of the subjects prescribed for this examination, some are evidently more useful for *educating* than others. No one will maintain that the candidate who makes 60 per cent. on the Geometry paper, for instance, by doing the book-work alone, has acquired the same amount of mental discipline as the one who has proved himself able to work out deductions. It is equally clear that the candidate who makes a good percentage in the English Grammar group, obtaining 60 or 70 per cent. in English Composition is better educated than the one who makes the same percentage in the group but has made up for his 20 per cent. in English Composition by a large percentage in Grammar. The same remarks will apply with equal force to Geography and the Optional Groups. It is notorious amongst High School Masters that most of the candidates make their calculations in accordance with the following scheme:—

In Group I, Book-work in Geometry—which usually counts 55 or 60 per cent. of the paper—will save the student from a plucking; his English Grammar—a subject easily got up so far as Book-work and Analysis and Parsing are concerned—will carry him through Group II; and so on with Geography in Group III; and Chemistry, and French, Latin, and German translation and Grammar in the Optional Groups. In other words he knows that he may safely treat with comparative neglect the study of those subjects that require the exercise of the higher mental powers, if he is able to cram as he goes on, or towards the end of the course. The teacher is, of course, driven to adopt the same plan, and to sacrifice education for the sake of the money grant. In many cases, indeed, he would be powerless to induce the young man or woman aiming at a second-class certificate to devote

much attention to a subject, or part of a subject, that would not pay. Before the introduction of the Intermediate, Geometry, English Composition, History, Chemistry, and French, Latin and German Composition, might have been taught as they should be taught: as matters now stand it is either impossible or impolitic to do this before the student has passed; for every teacher wishes his pupils to "get through" as soon as possible into the smooth water beyond, where he will be at liberty to teach and not be forced to coach. It is in connection with this subject that the Reports of the Sub-examiners are especially valuable. The importance of the question will justify us in quoting the passages to which we would direct the attention of our readers:—

GROUP I.

Dec. 1876. "In Euclid a fair knowledge of Book-work was shown; the solution of Geometrical Problems, other than Book-work, was not frequently attempted."

June, 1877. "In Euclid the Book-work was well done, but the attempt to solve problems showed little appreciation of the spirit of Geometrical reasoning. However, it is but fair to add that some candidates did remarkably well."

July, 1878. "In Geometry the Book-work was on the whole well done; but there was an almost total failure in the selection of Deductions."

The Reports admit improvement in both Algebra and Arithmetic—particularly in the latter, which is not surprising considering the inordinate amount of attention the schools now devote to the subject. The results also go to show that continued failure in methods of study is now a direct consequence of the system. It will be observed that the efforts at solving Deductions—at independent reasoning—are apparently becoming worse and worse.

GROUP II.

Dec., 1876. "The Compositions were fair: in Grammar the Analysis and Parsing were in general good . . . The criticism of sentences of ambiguous or doubtful construction was scarcely attempted. Spelling exceptionally good."

June, 1877. "Spelling not so good as at last Examination. The Composition was very creditable. In English Grammar the analysis of the selection was well done; the parsing was poor; while the criticisms on the sentences proposed, were as a rule incorrect and pointless."

July, 1878. "Spelling in Dictation paper in general good. Gross errors in Orthography in English Literature. In general the same remarks apply to English Composition as were made at the Christmas Examination. In many of the papers a good deal of knowledge, skill, and taste was displayed; but the spelling was often illiterate, vulgar expressions too frequently occurred, and a want of training was evinced in the first and simplest elements of sentence building. Pupils who displayed no lack of skill in parsing and analysis, seemed unable to apply their knowledge synthetically in the construction of sentences. Your committee would venture to suggest once more that English Composition should go hand in hand and *pari passu* with the study of English Grammar. There seems to be some danger lest under the present system the end should be lost sight of in the means. In English Grammar, the majority of the papers were very creditable. This is one of the subjects which seems most thoroughly taught. Failures were few, but instances of high excellence were rare . . . Three-fourths of the candidates obtained 20 per cent. on Parsing and Analysis alone, but questions demanding thought were weakly handled, and the criticisms were almost invariably failures."

Our readers will observe that in this Group under the operation of the Intermediate—

(1) English Composition from being “fair” and “very creditable” has become so bad as to provoke the strongly worded remonstrances of the Departmental examiners.

(2) In the case of the English Grammar Paper, the large majority of the candidates obtained the minimum to pass, on Analysis and Parsing alone; while their efforts at applying their knowledge of Grammar in the correction and synthesis of sentences have been throughout such miserable failures that the examiners are forced to say that “under the present system there is danger lest the end be lost sight of in the means.” In other words there has been “no proper assimilation of grammatical knowledge.”—“Questions demanding thought were weakly answered.” English Grammar, however,—pure and simple—is one of the subjects which seems most thoroughly taught. And no wonder; for while it is valued at 180, English Composition, of which Grammar and Spelling are merely the ministers, counts but 75.

GROUP III.

Dec., 1876. “One of the most satisfactory Groups examined. In History the questions demanded of the candidates not only a knowledge of particular facts, but a power of generalization, a conception of method, and a faculty of arranging disjointed details (as given in Text-books) in one comprehensive answer. These requirements were evidently possessed by many candidates. In Geography there has been considerable improvement on last year. Some of the maps were drawn with remarkable fidelity.”

June, 1877. “Map-drawing and political Geography were very poor, while map Geography was very good. In History candidates exhibited considerable knowledge of facts, but

those questions requiring a faculty for generalization and inference were either misunderstood or imperfectly answered.”

July, 1878. “In Geography, physical and political, the candidates manifested a good knowledge, and their familiarity with Canadian Geography, as evinced by their descriptions of the Railroad System of Ontario, was highly creditable. In Mathematical Geography and Map Drawing, the results were very poor; and the candidates’ notions of the latitude and longitude of particular places were lamentably vague. The general standard reached in History is much the same as at the Christmas Examination, not higher than 40 per cent. . . .

Questions admitting of one short definite answer were usually well dealt with, to the Examiner’s comfort, while questions demanding a power of generalizing, usually elicited a copious and unsatisfactory reply. The answers to the only question on Canadian History have shown great ignorance of the subject.”

The Reports speak very favourably of the English Literature. The answers go to show that the candidates generally have been familiar with the Texts, and have caught the spirit of the authors—a result which, it is unnecessary to say, cannot be ascribed to the “Intermediate” *per se*.

It will be noticed in this Group that,

(1) Geography, so far as it is capable of being merely memorized, has generally been good, and is still improving; but the ability to use the facts is decreasing.

(2) The study of History has been very seriously affected. Candidates seem to have at first possessed the power of generalization, &c., but to have latterly shown an almost total want of those mental qualifications which it is one of the provinces of the study to develop, and the existence of which a system of cram would either destroy or prevent.

(3) There has been a failure in Canadian History. This is not surprising, and under the present arrangement it will be hard to prevent it. English, Roman, and Canadian History are all on the same paper, the English History generally counting at least two-thirds of the whole. Evidently neither teacher nor pupil has been so impolitic as to devote much attention to a subject which the Department values so little.

OPTIONAL GROUPS.

As to French, Latin, and German, the Examiners invariably remark that "Students who show a fair theoretical knowledge of Composition, are found incapable of applying the simplest rules of Syntax." The Report for July, 1878, is particularly severe. "In translating from Latin into English, keys had evidently been used, begetting a showy and shallow style of performance, which otherwise betrayed itself by ignominious failures in common concords in Latin Composition."

The Reports are not very demonstrative in regard to the Science Group. There seems, however, to be an improvement, particularly in Chemistry—the subject we should have expected to "look up" under the influence of the "Intermediate." The study of Natural Science has heretofore been advocated on the ground that it develops the powers of perception and induction. The attentive observer will fail to discover much evidence of this belief in the Chemistry papers as now constructed. A fair knowledge of the "Rule of Three" and a smattering of facts will bring the candidates through this Examination with flying colors.

A few words in conclusion, and we leave our readers to judge whether the defenders of the "Intermediate" or its opponents "are under the dominion not of ideas, but of words."

By "cramming," it is evidently necessary to explain, is meant not only "filling the mind with knowledge which is not so thoroughly assimilated as to become a permanent possession," but also filling the mind with knowledge which even when remembered, the possessor is unable to use. This, it is unnecessary to say, is by far the more objectionable feature of the defect. The case we have stated above bears us out, we think, in concluding that in both these senses, the "Intermediate" has not only not "lessened the tendency to cram," but is actually increasing it in many of the subjects of study. To summarize:—

(1) It has stimulated the study of those subjects and parts of subjects which may be mastered mainly by an effort of the memory.

(2) It has in many subjects made the possession of facts of more importance to both teacher and student than the ability to use them. In other words, it is strengthening the carrying power of the memory at the expense of other important faculties.

(3) It has deprived of their legitimate value, as a means of education and as results of education, several important subjects on the programme.

(4) It has not tended to develop certain mental habits enumerated above which it is the duty of every educational system to foster.

As our desire is to benefit education, and not simply to defend an opinion, we admit that these conclusions would be safer if based on observations extending over a longer interval than two years and a-half; but we set them, supported by the facts we have quoted and by the consensus of the High School Masters, against the mere "opinion" of three officials, who, in the face of successive modifications of the scheme, have from its very introduction maintained that the Intermediate has no injurious tendencies.

FIRST LESSONS IN ARITHMETIC.

BY JAMES B. GREY, INSPECTOR PUBLIC SCHOOLS, ST. CATHARINES.

IN these days when nearly every county in our Province has its Institute at which the various methods of instruction, in all the branches, are fully and ably discussed by practical men, it seems quite unnecessary to write an article on the above subject, and quite as unnecessary that space should be given to it in *THE EDUCATIONAL MONTHLY*; but when we consider that at our Teachers' Conventions very little time is spent in the consideration of methods of giving introductory lessons—and that it is these lessons that most severely tax the skill and ingenuity of the teacher, I think the *MONTHLY* would do good service in the cause of education, by occasionally publishing plain and practical articles on Primary School Instruction, written by experienced teachers. As it is most important, in a child's education, that we make a right beginning, and lay a proper foundation for the subsequent superstructure, it is the opinion of the best educators that the successful training of the young requires the greatest skill and the ripest experience. We find, however, in our graded schools that the highest teaching talent is given to the advanced classes, and the only qualification required of a teacher of a primary class is the lowest certificate. Such being the case we have no doubt that many a child's education is marred by the blunders and incompetency of his first teacher. With the view, therefore, of being helpful to the inexper-

ienced teacher placed in charge of junior classes, let me make use of the columns of the *MONTHLY* for the following practical observations on teaching Arithmetic to beginners.

Before commencing the study of Arithmetic as a science, it is essential to the pupil's real progress, that he should be conducted through a course of oral instruction, carried on by means of objects. It is a great mistake that some make in placing text books on this subject into the hands of young children, and of requiring them to pursue the study as it is arranged in these books. The skilful teacher will begin his instructions at a point much further back than that at which authors usually commence their works. The foolish and inexcusable method of making a child commit a rule to memory, and then setting him to work with abstract numbers is rightly condemned by all teachers of any ability, and yet with all the advantages of our Institutes held twice a year, and the great number of professional works to which the teacher has access, this is the method pursued in too many instances. I have seen many teachers give a lesson to young pupils in Addition in the following way. They would first put down a few columns of abstract numbers on the blackboard, tell them to draw a line, show them where to begin, what to put down, what to carry, and all about it, and call this a first lesson in addition. If they had studied out a plan by which the facul-

ties of the child's mind would remain undeveloped under instruction they could not have succeeded better. They are performing their duty with about the same intelligence as a parent who, taking his child out for exercise, picks him up in his arms and carries him the whole way. The young teacher, I trust, will seek a more enlightened and natural way of presenting this subject to his class. As little children have no conception of number, apart from objects familiar to them, it is evident that our first operations in Arithmetic should be with concrete numbers. In the introductory course of Arithmetic which we recommend, the numerical ball frame will be found a very serviceable apparatus,—not one of those little frail articles so common in our schools, but one with a substantial frame, four feet high and three feet wide, with strong wires two or three inches apart, and balls at least an inch and a half in diameter. In this preliminary drill the following hints should be observed: The teaching should be entirely oral; applicate numbers alone should be used; no rules or definitions should be given. The course will include simple operations in the four fundamental rules in the tables of Money, Weights and Measures, and in Fractions. Our first lessons would obviously be to teach our pupils to count objects up to one hundred, not further, and to write their signs, but nothing should be said about the theory of the numerical system. Each of the numbers from one to nine inclusive will require a separate lesson, but after this the pupils will be able to master a group of numbers, as from ten to nineteen, from twenty to twenty-nine, &c., at a single exercise.

ILLUSTRATION.—Let us say that the lesson is on the number seven. The teacher, with the ball frame in his hand, moves the first ball on the

wire, the class counting "one," then the second ball, the class counting "two," and so on till seven is reached, which number the teacher repeats, the class repeating after him; then count backwards to one, and forward to seven again, going over this process as often as necessary. To make the exercise more interesting the pupils in turn might be asked to count seven marbles, seven buttons, to make seven marks on the board, to hold up seven fingers, &c. The lesson, which should not be continued more than ten minutes, would be concluded by showing what the symbol for seven is, and carefully teaching the proper way of making it. When the pupils are able to count readily any number of objects between one and one hundred, and to write the figures representing them, the next step should be the addition of small numbers. In teaching this rule the following series of exercises are recommended: 1st. Keep the receiving number constant, and vary the added number; 2nd. Keep the added number constant and vary the receiving number; 3rd. Take any number such as nine, and ask for the numbers which when added will make nine; 4th. The adding of more than two numbers.

ILLUSTRATION.—The lesson, say, is adding small numbers to "three." The teacher slides three balls to the extremity of the first wire, and brings up one, asking how many are one and three? "four;" then returning the one ball, brings up two, asking how many are two and three? "five;" then returning the two balls, he brings up four, asking how many are four and three? "seven," &c. Now put the frame aside and go over the same recitation, using other objects. In our schools, even with large children, the habit, when working examples in addition, of counting on the fingers or ticking on the slate is too frequent-

ly formed by the pupil and permitted by the teacher, but exercises of the above description would prevent such objectionable practices.

SUBTRACTION.—Series of exercises: 1st. From any given number take all the numbers below it; 2nd. Take a given number from numbers above it; 3rd. Find the subtrahend; 4th. Find the minuend.

ILLUSTRATION.—Lesson, subtract from ten the numbers below. The teacher takes the frame and sets off ten balls on the first wire; he then separates one ball from the group, and asks how many remain? "nine;" reforms the group, and separates two balls, asking how many remain? "eight;" again reforming the group, he separates three balls, and asks how many remain? "seven," &c. Proceed in the same way with other subjects, also with marks on the black-board. After the class has had sufficient practice in subtraction, it would be advisable to give examples combining Addition with Subtraction.

MULTIPLICATION.—Series of Exercises: 1st. Keep the multiplier constant; 2nd. Vary the multiplier; 3rd. Factoring. This rule should be explained through Addition.

ILLUSTRATION.—Lesson, multiply by two. The teacher uses two wires, and first slides a ball to the extremity of each, and asks how many ones are there? "two;" how many in all? "two;" then two ones or twice one are how many? "two." He next places two balls at the extremity of each wire, and asks how many balls on each? "two;" how many on both? "four;" then two twos or twice two are how many? "four." Next placing three balls at the extremity of each wire, he asks how many threes are there? "two;" how many in all? "six;" then how many are two threes or twice three? "six," &c., &c. The multiplication table should not be committed to memory until the pupil is more advanced.

DIVISION.—Series of Exercises. 1st. Keep the divisor constant. Select the smallest dividend that will contain it evenly and proceed upwards. 2nd. Divide numbers which will leave a remainder. 3rd. Questions involving Multiplication and Division.

ILLUSTRATION.—Lesson dividing by three. The teacher uses three wires of the frame, and first slides a ball to the end of each wire, asking how many balls? "three;" how many threes? "one;" how many threes in three? "one;" divide three by three, "one;" then he slides two balls to the end of each wire, and asks, as before, how many balls? "six;" how many threes? "two;" how many threes in six? "two;" divide six by three, "two." Again he slides three balls to the end of each wire, asking how many balls? "nine;" how many threes? "three;" how many threes in nine? "three;" divide nine by three, "three," &c.

FRACTIONS.—Our exercises in Fractions with young children must necessarily be of the easiest kind, and always performed through the means of objects. The teacher by dividing an apple into halves, quarters and eighths, can give to the child correct ideas of a fraction, and elicit answers to questions similar to the following: What is the difference between one-half and one-fourth? What is two times one-half? How many quarters in two?

REDUCTION is a rule that usually presents great difficulties to the learner. The reason of this is that pupils generally are taught the tables of Money, Weights and Measures, in a very objectionable manner. How often do we find classes of small children repeating these tables, and at the same time they have no understanding of the words they are using. I have known instances of children being able to repeat accurately all the tables, but who being asked what an inch was, could give no answer. Every

school should be supplied with a set of weights and measures, and through these the tables should be learned. Suppose the lesson is on measure of capacity, the teacher, instead of requiring the pupil to commit it to memory, either from the book or as written on the board, proceeds in the following intelligent way: He first exhibits to his class the various measures and allows them to be inspected, next he teaches the names of each, and by actual measurement by the pupils themselves, constructs the table. One pupil takes the pint measure and

finds that he will have to empty it twice to fill the quart, then two pints make a quart. Another takes the quart measure and finds that he will have to empty it four times to fill the gallon, then four quarts make a gallon, &c., &c. Besides the exercise afforded in the construction of the tables, many others interesting and valuable will be suggested to the skilful teacher. If pupils were taught the tables in this rational way, I see no reason why Reduction should present more than the ordinary difficulties of any new rule.

(To be continued.)

SCHOOL-BOOK EDITING AND AUTHORSHIP.

BY THE EDITOR.

NOT the least of the evils which have come of the changes in the text-books in use in the schools of Ontario, since the Central Committee replaced the Council of Public Instruction, is the unchecked development of a system of native school-book editing, trivial as to the extent of the work undertaken and often offensive in the manner in which it is accomplished. In the list of authorized books of one publishing house in our midst, at any rate, scarcely any book, however good in itself, and however satisfactorily it has met the wants of the educator in either the English or the American market, has been considered fit to find its way into Canadian schools without passing through the hands of this editor or that, or without being freighted with the super-additions of those more ambitious than modest in acting as sponsors to the books put upon the authorized list. So preva-

lent has this custom become of subjecting approved school-books to native editing, that we can quite fancy the original author hesitating to give his consent to a Canadian edition of his work, lest it should be disfigured by the puerilities of some pretentious native editor, or be disguised under the "improvements" of a would-be adapter of his labours. However this may be, this, at least, we have knowledge of, that in the case of school-books of American authorship, many of their publishers have assured the present writer that they shudder to learn that any of their copyrights have been introduced into our schools, lest it should lead to the Canadian republication of the books and to the too-often inequitable disregard of the author's rights in the yield from their sales. So alarming, indeed, have been the moral ravages upon the good name of the country by these acts of Canadian publishing houses, that

among the original makers of school books the educational system of the Province has begun to be regarded with grave suspicion, as it has seemed to develop qualities of trade-jockeying and commercial unscrupulousness, in the matter of school books, utterly foreign to the experience and business methods of honourable men. That the Minister of Education has been wholly ignorant of the manner in which the authorized text-books have of late years been manipulated in their presentation to the schools of the Province, it is almost impossible to believe; and it is as difficult to suppose that he has not seen the *motif* for sanctioning the host of adapted books which a favoured house in the trade has managed to get approved by the Central Committee, and understood the intimate bond of union between the latter body and the publishing house referred to. So embarrassing indeed have been the favours which the Minister's advisers have showered upon this firm, that it is with evident difficulty that the house can now tell which of its publications are authorized and which are not, so delightfully confusing has been the luck which recent years, through "friends at court," have brought to the firm. But the matter has a serious aspect for the Minister in the account of his stewardship due to those who, however he may have himself shut his eyes to the intrigues of his subordinates, have not been unobservant spectators of the Committee's acts in the exercise of the judicial functions confidingly entrusted to them. What justification in their behalf the Minister will be prepared to offer, we know not; but those who have the interests of education at heart will demand something more satisfying than the results of a certain impeachment investigation, against the conclusions of which the lists of authorized books published by the firm con-

cerned in the enquiry are a palpable set-off.

Of course, in discussing this matter, it will be understood that we do not hold Mr. Crooks personally accountable for the successes of the firm of publishers to whom we refer, nor do we wish to fasten upon the Minister any responsibility for the character of whatever enterprise has enabled the house in question to flaunt its triumphs in the face of the profession. With such trade-tactics we cheerfully assure ourselves Mr. Crooks has had nothing to do, nor would we readily believe that they are such as commend themselves to his sense of propriety and good taste. There are circumstances, however, which officially identify him with the matter under notice, of which it is hardly possible that he could be unconscious, and concerning which we find ourselves compelled on ethical grounds, as well as in the interest of education and of the profession, to make some further comments. These circumstances particularly point to a seeming default of administrative supervision and authority, which we could have wished the Minister had been careful enough to have exercised. We refer to the intimate commercial relations of the house of which we have been writing with the senior Inspector of the Department whose books the firm has published, and which, despite the fact that they have no official authorization, have been industriously circulated in the schools of the Province—contrary to the edicts of the Department which forbid the use of all unauthorized books. The grave impropriety of Dr. McLellan's pecuniary interest in these books while holding his official position, is a circumstance which cannot be too strongly reprobated; and the perambulatory advertisement by the author of the books in question only adds to the indecorous charac-

ter of the connection, which, as we shall see further on, is unredeemed by any special excellencies in the books themselves.

The further relationship of Dr. McLellan with Mr. Kirkland, a fellow-worker in the profitable mining operations which have been so assiduously developed of late in the Education Department, is an alliance which, considering the pickings in the ore Mr. Kirkland has been invited to make his own, the senior Inspector should have been scrupulous enough, for his own sake at least, to have discouraged. But in the "big Bonanza" which some of the Central Committee have found in the path of their duty, it was perhaps too much to expect any severe repression of the acquisitive faculty, particularly when the cue was given by the Chairman himself, in plain disregard of the proprieties of official position, by contributing to a work which subsequently must have come before him for judicial appraisal prior to official authorization. Says Mr. Kirkland, in the preface to his work on Elementary Statics, "I have tender my thanks to several friends for suggestions and assistance which have been of the greatest service to me, and particularly to Professor Young for suggesting several important improvements in the work, and for the excellent collection of examination papers in chapter xii., which add much to the value of the book." Comment upon impropriety so grave as this, in one holding the position of Chairman of a trusted body of impartial advisers of the Minister is, we conceive, unnecessary.

With the morality of the trade enterprise that has enabled the favoured book-house to flood the schools with their publications, as we have said, we do not connect the Minister, nor do we unreservedly associate the Central Committee, as a body. The relations of the senior Inspector

with the house cannot be said, however, to have been without its influence, in connection with the diligent self-assertion of the Inspector himself, in advancing the interests of both parties in the sale of the books. That this influence has in many quarters been resisted, is creditable to the independence of the profession, who, rather than bow to the conditions of success in the introduction of the unauthorized books, preferred to conserve their self-respect and maintain the integrity of their own convictions. Nevertheless, the influences have not been inoperative among teachers, and we are not surprised to learn that thousands of copies have been sold within inconceivably limited periods, as the publisher's advertisements declare—a record of success unprecedented in the history of native publishing! The *ad captandum* character of such advertisements may be gathered from the morality which imposes credence upon the profession for the announcement, in catalogue and title-page of book, of the number of editions published of works issued by this enterprising firm of Canadian publishers. One instance will be as good as half-a-dozen, and the reader will find it in the reprint of Mason's "English Grammar," which, in the copy before us, is announced as the *25th Edition*, an issue which adds the two or three Canadian ones to the 22 or 23 editions issued by the English publishers of the work *before the book came into use in Canadian schools!* But these are matters aside from the immediate subject upon which we intend to offer some criticism, though such illustrations of the genius of puffing are but too apt to be travestied among the profession, and to mislead those who think that the prizes of success are to be gained by the persistent force of similar inflated affirmation. How far the Minister of Education, however, can tolerate the

existence of a state of things evidenced by the matters we have brought to light, is an anxious and burdensome thought; but it would be difficult to reconcile continued indifference to the effect of such disclosures upon public morals and the integrity of the profession, with a strict sense of duty and a nice appreciation of propriety, —and if we know Mr. Crooks aright, we feel that we shall not have said this in vain.

But proceeding with our criticism upon the pretentious editing and authorship which some of the books in use in the schools of the Province manifest, let us instance two examples, one as a re-edited and the other as an original work, which present such features of faultiness and pretence as should earn for them the strictures of a trenchant but salutary criticism. Those we shall refer to on the present occasion, are Miller's "Swinton's Language Lessons," and McLellan's "Mental Arithmetic."

Taking them in their order, and dissociating the former from the lavish eulogies and trade puffs which have smoothed its path into the schools, let us first state some facts about the book and the edition of the work which competes with it for professional favour. Here, however, let us be guarded from the suspicion of interesting ourselves in a matter of mere rivalry between the two publishing houses issuing editions of the book, and which, strange to say, have both secured authorization. With the war-clash of competitive publishers, we, of course, have nothing to do, but issuing from such disturbances there often arise matters which interest others than those originally concerned in the fray, and it is such matters that press for consideration at our hands. Delicate the discussion of these questions may be; but the interests of education affected by them are too important

for us to continue to ignore them. Books, moreover, are public property, and the circumstances connected with the authorization of these rival "Swintons," and their use as text-books in the schools, are public questions, with which it is the critic's duty competently and impartially to deal. First then, let us remark that the Miller edition of Swinton's book is a reprint of an American copyright issued without the consent of its author and in violation of his moral claim to protection, or to a percentage of the profits on its circulation, which we are informed he does not receive. In addition to this feature of the case, the author suffers a more positive loss in the interference of this unaccredited edition with one issued by another native house which is published by arrangement with Prof. Swinton, who participates in the profits of the sale. But this is not all; the "Miller book" further injures the author by retaining in use an earlier edition of the work in lieu of the improved and later one which has supplanted it—the issue specially republished by authority of Prof. Swinton, for Canadian schools. To complete the injustice done the author, the Education Department authorizes *both* books, and in the case of the Miller reprint, inexplicably contravenes its own rule that none but editions issued by arrangement with owners of copyright should receive the authorization of the Department. In presence of so serious an evasion of this regulation, the impolicy of the Department's approval of two editions of the same book, dissimilar in their text and leading to manifest confusion and annoyance in the schools, need hardly be discussed. From the point of view of parent and pupil, however, this matter calls for more than the conventional official explanation.

But now let us look at the Miller book in its editorial aspects, and see

how much in character with the injustice which has so far been meted out to the book, is the treatment the author receives from its editor and publishers. In the first place the author gets no credit for his labour on the book beyond the incorporation of his name with that of the publishers in the title, "*Miller's Swinton's Language Lessons*"—all the rest is monopolized by the Editor, J. Macmillan, B.A., Ottawa Collegiate Institute, by whom, as the title-page goes on to say, the work is "adapted to the requirements of the Public Schools of Ontario, as an introduction to Mason's Grammar." But this discourtesy to the author is trivial compared with what meets us in the preface on the next page, where Prof. Swinton's name, appended to it in the original, is cut out, the references to himself cancelled, and the use of the personal pronoun *he* changed to *we*, to give colour to the seeming deception that the explanatory introduction is the work of the editor rather than of the author. In a supplementary "Preface to the Fifth Edition," immediately following the author's, this playing off the editor for the author receives additional support by appending the place and date, "Ottawa, Mar. 1878," to the end of the preface. Unexhausted by this labour, the editing proceeds, and with such instances of "adaptation" from the original as the following will indicate. In the author's book we frequently meet with professional hints which Prof. Swinton uniformly entitles *Teacher's Note*. In the Canadian work this as uniformly meets us as *Note to Teachers*! In the original, the author says, "Write the plural of the following nouns;" the reprint says, "Change the number, &c." Prof. Swinton suggests that "the *scholars* will change papers;" Mr. Macmillan prefers that "the *pupils*" shall do this. The author says "W. C. Bryant wrote

'Thanatopsis.'" The editor, in cutting the words out, seems to affirm that he does not believe it. A similar fate meets the statement that "Fulton invented the steamboat," and the "Hatchet Story" is deprived of the opportunity to impress its moral on Canadian youth. A few other phrases in the original are sacrificed on the altar of national sensitiveness, and Bunker's Hill and the Declaration of Independence are wiped out as historic memories in the reprint. A few instances of metamorphosing reveal themselves, of which the following are specimens: Wellington appears for Washington, Pitt for Patrick Henry, the St. Lawrence for the Mississippi, Hamilton for Boston, and London for Chicago, while "The Professor of the University" assumes the place of "The Teacher in our Academy," and "The Sword of the General" is the substitute for "The Bonnet of Mary." The drollery of all this sportive editing, however, is nothing to the fun of despoiling our cousins on the other side the line of their "inalienable right" to consider that "The American Constitution is a monument of political wisdom." In the Canadian reprint the word "British" in the sentence is substituted for the word "American," an instance of forgery in letters for which Mr. Macmillan need not be thanked if it does not seriously complicate the relations of the two countries. As in most instances of this class of crime, the work has been clumsily done, the editor having left, in the words "America and American" following the sentence, those traces of his guilt which he has not been careful to remove. To the English jurist and the historian of the Constitution, the amended phrase will present itself in as comical an aspect as will the educational book-making of Canada.

But leaving these light touches of Mr. Macmillan's editing, let us look for a little at his more serious work,

particularly at the much-vaunted improvements it is claimed he has made in substituting the definitions of Mason's Grammar for those of Prof. Swinton. But what is the result? Confessedly only a hodge-podge of two books which is neither Mr. Mason's nor Prof. Swinton's, and which sacrifices the unity and completeness of Prof. Swinton's work to a presumed advantage to the Canadian student, which Mr. Macmillan's jumble of definitions makes the purest phantasy. To illustrate this, let us take chapter 35, on Conjunctions, from which we will quote the three definitions given by Swinton of this part of speech, and contrast them with those given in the Macmillan book, the 1st of which is from Mason's Grammar—the 2nd and 3rd being the same as in Swinton. From Swinton then we quote:

Definition (1), "A Conjunction joins words to words, sentences to sentences, or shows the dependence of one statement upon another."

Definition (2), "Co-ordinate Conjunctions connect words or statements of the same rank in a sentence."

Definition (3), "Subordinate Conjunctions connect a qualifying or dependent statement with a principal statement."

Complete, symmetrical, and intelligible definitions. Now we will quote the definition from Mason's Grammar given in the Macmillan work, in lieu of Swinton's definition, No. 1, as given above, and we call our readers to notice the incongruity of the substitution when ranged with the others, besides its much less lucid meaning to the pupil. The Mason substituted definition reads, "Conjunctions are connective words which have neither a pronominal nor an adverbial signification."

How utterly foreign to the elementary character of Prof. Swinton's work is this imported definition, we need not stop to point out. To pitch-fork

it into line with the other definitions, without a word to explain the mystery of a pronominal signification, to either the pupil or to the teacher, who is not up in the technical language of the abstruse grammarian, seems the height of folly. It may be said in reply to this, however, that Mr. Mason's "pronominal" should be quite as intelligible to the public school pupil as the term "Co-ordinate." Granted, if the editor had explained, which he has not, the imported phrase, as Prof. Swinton has taken care to illustrate what are "Co-ordinate" and "Sub-ordinate" Conjunctions. Of course we admit that it is desirable to familiarize the pupil, at as early a stage as practicable, with the definitions in grammar, which he may be called upon to cram in a subsequent and higher field of study. But we plead that it is only common-sense that the definitions we place before the young, up to a certain stage at any rate, shall be those within their comprehension. Of such patch-work as this of Mr. Macmillan, we feel assured that no good can come to the pupil, if positive harm is not done him, in grafting on to the clear, simple, and sufficing definitions of the Swinton book the stiff, unintelligible philosophizings of Mr. Mason, which can only be comprehended, if at all, by the advanced student. Grammar, at the best, is a fearful muddle to the young, and above all things it should be kept free from any adulteration in definitions, and from the amateur editing that would take the systems of those who have planned out lucid, uniform, and systematic text-books on the subject to make nonsense of them.

But let us take another illustration, where the editor's disregard of Prof. Swinton's theory of building his book, as a progressive structure in view of the pupil, is ruthlessly manifested. Chapter 18, on Adverbs, is an instance to hand. Here the author's simple

plan of citing some examples in the lesson, and leading up from these to illustration, and from illustration to definition, forms a complete whole, which can only be interfered with to spoil the work. We quote from the original book, both however being alike, until we come to the definition, which in the Miller book introduces in lieu of it the Mason one—a definition that quite destroys the happy knack of the author's method, and unmeaningly mutilates what might otherwise be an effective lesson. Here is the instance :

“CHAP. XVIII.—ADVERBS.

“The big fire burns *brightly*.

“That book is *exceedingly* dear.

“Some birds fly *very swiftly*.”

(1) “The word ‘*brightly*’ modifies the meaning of the verb ‘burns’; ‘*exceedingly*’ modifies the meaning of the adjective ‘dear’; ‘*very*’ modifies the meaning of the adverb ‘*swiftly*.’ ‘*Brightly*,’ ‘*exceedingly*,’ ‘*very*,’ are *adverbs*.”

(2) “DEFINITION.—An adverb is a word which modifies the meaning of a verb, of an adjective, or of another adverb.”

Now let us give the Mason definition which appears in the Miller book, in lieu of the above, and which fits its place in the lesson pretty much as does a patch of brown paper on a broken pane of glass :

“An adverb is a word which shows the conditions of place, time, manner, degree, cause, effect, &c., which modify or limit an action or attribute.”

The injustice to Mr. Mason, in putting *him* forward to disregard the unities of “place, time, manner,” &c., in such work as the above, is obviously not the least of the evils of this sort of editing which has had the approval of the Education Department. Fortunately for that gentleman, however,

although the Miller firm have widely paraded the fact that the definitions in their Swinton book have been brought into harmony with those of Mr. Mason, such is limitedly the case. For out of 25 definitions, in all, in the book, 12 of them are Prof. Swinton's; three or four more are of neither author, or are only in part Mason's; the few remaining being Mason's solely.

But were this otherwise, as we have already hinted, the adaptation of Swinton's definitions and classification to those of Mason's Grammar would be of questionable advantage. For the object of such a work as Swinton's is to teach grammar, not theoretically, but practically,—in developing the pupil's power of expression,—and this can best be done by giving directions couched in plain language rather than in the elaborate phraseology of the grammarian. As Prof. Swinton himself says, in the preface to his book :—

“This work is an attempt to bring the subject of language home to children at the age when knowledge is acquired in an objective way, by practise and habit rather than by the study of rules and definitions.

“In pursuance of this plan, the traditional presentation of grammar in a bristling array of classifications, nomenclatures, and paradigms has been discarded. The pupil is brought into contact with the living language itself; he is made to deal with speech, to turn it over in a variety of ways, to handle sentences; so that he is not kept back from the exercise—so profitable and interesting—of *using* language till he has mastered the anatomy of the grammarian. Whatever of technical grammar is here given is *evolved* from work previously *performed* by the pupil.”

These remarks of the author the editor of Miller's Swinton must surely have overlooked. But the harmonizing of the two books claimed by the publishers for the labour of Mr. Macmillan, as will be seen, has fortunately not been done; whatever the editor set out to do; and the citation of a few further in-

stances, if we do not weary the reader will irrefutably prove this.

To begin with the definition of an adjective (p. 28) is adapted from the old edition of Mason, and is quite different in form from that given in the new one. Mason calls *a* or *an* a Quantitative Adjective; in Miller's Swinton, it is called a Demonstrative one. On page 46 we have the statement that there are *two kinds* of phrases, instead of three, and the basis of the classification is not given. On page 52 we have an explanation of "complete" and "incomplete" verbs which, though quite rational, is altogether different from what is found in Mason. The latter author always speaks of verbs of *complete* or *incomplete* predication, and it is desirable that the phraseology, if possible, should have been retained. On page 57 *he*, *she*, and *it*, are called demonstrative pronouns, which is in harmony with Mason, but is probably a faulty classification. On page 58 we have the statement that the various *forms* taken by a pronoun are called its *cases*. A pupil would be apt to conclude from this that the pronoun *it* has only *two* cases. Again, on page 68 we have a definition of a "Compound Tense"—which is different altogether from Mason's. Moreover, it does not show what is necessary to make up a compound tense. Mason has nine primary tenses, and three of continued action. Here we have only six. The definitions on p. 75 do not harmonize in form with those of Mason. On page 79 we have the statement that there are three participles in English—the Present, the Past, and the Perfect. On pages 76, 147 they are called Imperfect, Perfect, and Compound Perfect—different names, quite unnecessary to apply to the Participles, and inevitably confusing. The Participles on pp. 69, 73, formed by inflection are indicated as two only, while on p. 79 we find it stated that

there are three. Mason (p. 63) mentions but two. On p. 88 we have the statement, "In the sentence, 'Columbus discovered America,' the simple predicate is *discovered America*." According to Mason, the predicate is *discovered* only. (See Mason, p. 137).—The use of the term *complement* in the book is quite different from that of Mason. (See pp. 89, 91). Finally, on p. 102, the word *mist* is not parsed correctly, according to Mason; (See the latter, on p. 147); and it is even in that authority not correctly parsed.

There are many other points of contrast between the two books, which as strongly tell against the editing attempted in the Miller Swinton as any we have spoken of, but to these it is unnecessary to refer in detail. Some redeeming features are, of course, to be met with in the editor's work, but these are so few as not to invalidate our contention that the claims of excellence for Mr. Macmillan's adaption are insufficiently grounded, and in the interest of education may be said to be reprehensibly misleading. The mechanical dissimilarity of the books, from another point of view, is not the least noticeable feature of difference that strikes the reviewer's eye. Some of the chapters particularly suffer in this respect, that "On the Kinds of Words," on p. 11, for instance, where the visual effect of the page, in the original, in impressing the lesson, is wholly lost to the pupil by reason of its mutilation in the Canadian reprint.

In this latter respect the author's later edition is again an improvement over both the Miller reprint and the edition from which it is reprinted. As a text-book, in its professional and educational aspects, moreover, it stands on a higher plane of excellence than the older book, which it far surpasses, not only in the plan upon which it has been prepared, but in the more systematic arrangement and orderly

development of the subject of which it treats. But with the author's "New Language Lessons," in either its improved literary or mechanical features, we are not now concerned. This is a matter of which the profession have now an opportunity of judging for themselves. It was otherwise with the "Miller Swinton," as, when it appeared comparatively few teachers were so intimately acquainted with the edition from which it was reprinted as to be able to discover the character of the editing to which the work, in Mr. Macmillan's hands, had been subjected. And in the interest of the schools, as well as in justice to Prof. Swinton, it is this work we have here attempted, viz. : to apply to one book, of the many that require it among our authorized school books, those tests of criticism by which faulty work is distinguished from honest work, and to bring to the bar of public opinion the too common but objectionable practices of publishers who are responsible for the issue of such a work as the one we have been examining. Criticism, it must be remembered, exacts from school manuals the same regard for honest, honour-

able performance, in author or editor, as it exacts from other literary work ; and it is an educational misfortune, if, instigated by professional arrogance, or at the bidding of indiscreet publishers, the responsibilities of editing are undertaken without regard to the pre-requisites of the art, or in indifference to what ought to be the desirable results of its exercise. Too often, unfortunately, such work is thoughtlessly undertaken, at the solicitation of importunate and self-interested publishers,—and it seems so easy to edit a book, or to attain, at least, to the rank of an "appendix-author,"—but those who heedlessly fall into the trap sometimes live to repent it. If it be any consolation to such as have become victims to this enticement, we may say that literature is most often the severer sufferer.

Our remarks having grown to such length we have thought it better, rather than extend them here, or return to the subject next month, to throw the criticism upon Dr. McLellan's work we had designed appending to this, into the form of a book review, in which department it will be found in the present number.

WHAT IS RELIGION?—In the course of the Muir lectures on "Science and Religion," in the University of Edinburgh, the Rev. Principal Fairbairn, of Bradford, thus answers the question, What is religion?—Religion, they might say provisionally, was a consciously realised relation—the relation of man to God, and God to man. It was neither knowledge, whether described as intuition or thought, nor feeling, whether of dependence or of admiration, nor as if it were an external conscience, nor conduct. It was none of these, yet it was all of these. No one of these included it, yet all entered into its nature and its essence. There could not be religion without knowledge, for faith was knowledge ; man must believe or know an object was, before he could sustain any

relation to it ; to the unknown he could stand in no relation or conscious relation whatever. There could be no religion without thought, for to conceive was to think, and an object believed was an object conceived. Nor could it exist without feeling, for feeling implied thought. To be conscious of feeling was to be conscious first of ourselves as its subject, and second, of something not ourselves as its cause or object. Nor could it be apart from conscience, which was at once knowledge and feeling—a knowledge of the difference between acts and the feeling of obligation to do acts of a certain kind ; and so a relation such as was realized in religion was eminently fruitful of the acts judged and enjoined by conscience.

THE PUBLIC SCHOOLS OF ENGLAND.

BY THOMAS HUGHES, AUTHOR OF "TOM BROWN'S SCHOOL DAYS," ETC.

From the "North American Review."

[NOTE.—No apology, it is thought, will be deemed necessary for giving place in the e pages to the instructive papers on "The Public Schools of England," now being contributed to an American review by so high an authority as Mr. Thomas Hughes, M.P. The interest of the subject for our readers, and the rich detail of information concerning the schools given by Mr. Hughes, will make ample amends for the length of the articles.—ED.]

PART I.

"Well, but will you tell me, after all, what is a public school?" The propounder of this was an American gentleman, of high culture himself and deeply interested in the subject of education. He was not satisfied with the state of things in his own country, and was persuaded that the time had come when an effort must be made to meet the demand for some other stepping-stone for their boys than the common school or the private boarding-school, between the home of the American gentry and the universities. He had read such documents as he could lay hands on as to the English public-schools system, and had convinced himself that there might be something in it which would be of use to him in his search. At any rate he would run over and study it for himself. Accordingly, having obtained such letters as he thought might be of use to him, he sailed for England, and, after consultation with and under the advice of some of those to whom they were addressed, made a tour of inspection which comprised most of the English public schools. He had been much pleased with his adventures; had seen a number of fine buildings, some of them of rare historical interest; had got much information as the methods of study and discipline; had looked on at any number of cricket matches and other games, and been much impressed by the skill and activity of the boys, and the beauty of their raiment; had talked with masters, and prefects, and other boys, big and little, and had come back full of all manner of facts and figures. But in one thing he had failed, and in a matter, too, which he not unreasonably held to lie at the very root of his inquiry; and so, after his six weeks' wanderings, he returned to his original mentor in London, before starting on his return voyage, with the

above question, "What *is* a public school?" Many replies, indeed, he had heard, but none which had at all satisfied him. Thus he had been told by a sixth-form boy in the Eton eleven, that the only public schools in England were those which played against each other in a yearly match at Lord's cricket-ground; according to the captain of Westminster, a royal foundation was the true test; other authorities of equal weight had limited public schools to those entitled to contend for the Elcho shield and Spencer cup at the Wimbledon gatherings of the National Rifle Association. A Liberal under-master at Rugby had defined public schools as those which possessed a foundation controlled by persons in no way interested in the profits of the institution; while at Shrewsbury he had been assured that a charter of some Plantagenet or Tudor sovereign was of the essence of a true public school. From his own observations and inquiries, however, he remained quite dissatisfied with all and each of these definitions, and came back with steady persistence to the starting-point, "What is a public school—in your country?"

The question is one of considerable difficulty. To some extent, however, the answer has been furnished by the Royal Commission appointed in 1861 to inquire into the nature and application of the endowments and revenues, and into the administration and management of certain specified colleges and schools commonly known as the Public Schools Commission. Nine are named in the Queen's letter of appointment, viz., Eton, Winchester, Westminster, the Charterhouse, St. Paul's, Merchant Taylors', Harrow, Rugby, and Shrewsbury. The reasons probably which suggested this selection were, that the nine named foundations had in the course of centuries emerged from the mass of endowed

grammar-schools, and had made for themselves a position which justified their being placed in a distinct category, and classed as "public schools." It will be seen as we proceed that all these nine have certain features in common, distinguishing them from the ordinary grammar schools which exist in almost every county town in England. Many of these latter are now waking up to the requirements of the new time and following the example of their more illustrious sisters. The most notable examples of this revival are such schools as those at Sherborne, Giggleswick, and Tunbridge Wells, which, while remodeling themselves on the lines laid down by the Public Schools Commissioners, are to some extent providing a training more adapted to the means and requirements of our middle classes in the nineteenth century than can be found at any of the nine public schools. But twenty years ago the movement which has since made such astonishing progress was scarcely felt in quiet country places like these, and the old endowments were allowed to run to waste in a fashion which is now scarcely credible.

The same impulse which has put new life into the endowed grammar-schools throughout England has worked even more remarkably in another direction. The Victorian age bids fair to rival the Elizabethan in the number and importance of the new schools which it has founded and will hand on to the coming generation. Marlborough, Haileybury, Uppingham, Rossall, Clifton, Cheltenham, Radley, Malvern, and Wellington College, are nine schools which have taken their place in the first rank, and, while following reverently the best traditions of the older foundations, are in some respects setting them an example of what the public-school system may become at its best, and how it may be adapted to meet new conditions of national life.

In order, then, to get clear ideas on the general question, we must keep these three classes of school in mind—the nine old foundations recognized in the first instance by the Royal Commission of 1861; the old foundations which have remained local grammar-schools until within the last few years, but are now enlarging their bounds, conforming more or less to the public-school system, and becoming national institutions; and, lastly, the modern foundations which started from the first as public schools, professing to adapt themselves to the new circumstances and requirements of modern English life. The public schools of England fall under one or other of these categories. No one who understands the subject would question the claim of the modern foundations named above

to the title of public schools, in the same sense in which it is applied to the nine. Of the schools in the second category only a certain number can be classed as public, as distinguished from local grammar-schools, and perhaps the best rough method for ascertaining which these are is furnished by the conferences of head masters, now held yearly, at the end of the summer term. Where the governing bodies of grammar-schools desire to conform to the public-school system, it may be assumed that they will be represented by their head masters on these occasions. Tried by this test there are in all some forty foundations, which may fairly be called the public schools of England, and which would have to be studied by any American educational reformer, desirous of satisfying himself what, if any, portion of the system can be carried across the Atlantic to any useful purpose.

We may now turn to the historic side of the question, dealing first, as is due to their importance, with the nine schools of our first category. The oldest, and in some respects most famous of these, is Winchester School, or, as it was named by its founder, William of Wykeham, the College of St. Mary of Winchester, founded in 1382. Its constitution still retains much of the impress left on it by the great Bishop of the greatest Plantagenet King, five centuries ago. Toward the end of the fourteenth century Oxford was already the centre of English education, but from the want of grammar-schools boys went up by hundreds untaught in the simplest rudiments of learning, and when there lived in private hostels or lodging-houses, in a vast throng, under no discipline, and exposed to many hardships and temptations. In view of this state of things, William of Wykeham founded his grammar-school at Winchester and his college at Oxford, binding the two together, so that the school might send up properly trained scholars to the university, where they would be received at New College, in a suitable academical home, which should in its turn furnish governors and masters for the school. As might have been expected, the school itself took a collegiate shape, and under the original statutes consisted of a warden, ten fellows, seventy scholars, a head and second master, three chaplains, three clerks, and sixteen choristers. All these were amply provided for by the original endowments, but in addition the statutes provided for the admission of ten "*fili nobilem ac valentium personarum dicti collegii specialium amicorum*," who were to be educated in college at their own charges. How gently England deals with old institutions may be seen by comparing the Winchester of to-day with that of William of Wykeham. As time

went on the college property increased enormously in value, and long periods occurred in which a very different estimate from that of the Bishop came to be put on the higher education. And so, while the school never altogether failed in its work, great abuses crept in. College and school were kept as a close borough; the fellowships, pleasant sinecures of some five hundred pounds a year, and a good house were monopolized by the founders' kin and old Wykehamists of quiet tastes and popular manners; the splendid scholarships which carried their fortunate possessors to New College, franked them through the university, and often provided for them for life, were given without competition of any kind. All this is changed. The old connection between school and college has been preserved, but both have been thrown open, with the result that England does not contain two more satisfactory places of education. The governing body has been thoroughly reformed, but it still consists of a warden and eleven fellows, of whom four only, instead of ten, are stipendiary and seven honorary. The stipendiary fellows are elected by the whole governing body, and must be persons distinguished in literature or science, or who have done long and eminent service to the school as masters. The honorary fellows, except the Warden of New College, who is one *ex officio*, have no payment from the college funds, and must be persons qualified by position or attainments to be of use to the school. The collegers, or foundation scholars (who get a first-class education almost free) have increased to one hundred, selected by open competition, the cleverest boys being attracted from all parts of the country by the value of these prizes. The ten "*filii valentium personarum*" have increased, under the name of commoners, to upwards of two hundred, who are boarded in the masters' houses.

The salary of the warden is now fixed at £1,700 a year and a house, and that of each of the four paid fellows at £700 (instead of ten at the lower rate named above). The head master gets from all sources about £3,000 a year, the second master £1,400, and the under-masters according to the length and value of their service, from £250 to £800, besides the profits of boarders in the case of those who have houses. The college endowments consist of real estate situate mainly in Hants and Wilts, producing an average income of upwards of £17,000, and of stock producing another £2,000 or thereabouts in dividends. There are also thirteen church livings in the patronage of the warden and fellows ranging between £100 and £600 a year.

We must now turn to the monitorial sys-

tem, which is common in principle to all public schools, though differing largely in detail. Its origin may be traced to William of Wykeham's statutes, by which it is provided that "in each of the chambers three scholars of good character, and more advanced than their fellows in age, discretion, and knowledge, shall be chosen to superintend their chamber-fellows in their studies, to oversee them diligently, and to certify and inform the warden and head master from time to time respecting their behaviour, conversation, and progress." There are six chambers in college, and eighteen prefects, to which number twelve have since been added for commoners—of these, eight have power only in chambers, while the remainder are full prefects (*plena potestate praecepti*), with power everywhere. Of these, again, five "officers" have charge of the hall, schools, library, and chapel, of whom the prefect of the hall is the chief, being "the governor of the school among the boys," and their organ of communication with the head master. The five officers are chosen by the warden, in consultation with the head master, and all are invested by him with their authority in a traditional form of words, of which the operative ones are "*præficio te sociis concameralibus, præficio te aulae*." The system of fagging is connected with this government by prefects. They and they only have power to fag, and the only boys exempted from fagging are those in the fifth form. It is unnecessary for our purpose to consider the somewhat elaborate details of the traditional system, which at one time pressed heavily on the liberty and studies of the lower boys. At present fagging is reduced to running on errands, attending at breakfast and tea, and fielding for a certain time at cricket. The prefects' powers include that of "tunding" or punishing corporally. We must defer any remark on the general system for the present, but may just note here that, in the milder form which it has taken of late years, fagging is undoubtedly popular among the boys at Winchester who are subject to it, and, strange as it may seem to transatlantic readers, would not be abolished to-morrow were it put to the vote of the forms below the fifth.

Winchester School, though under the shadow of the founder-Bishop's own cathedral, has a fine chapel of its own, in which there are daily morning prayers, conducted by a master, consisting of a portion of the Liturgy with chanting. The hours of work in school are on two days of the week between six and seven and on the other days between four and five hours, besides which the boys in the higher forms have composition and examination work to do out of school-hours. A hard-working

sixth-form boy will generally study seven hours a day, and perhaps from nine to ten before examinations, and will give probably on an average three more hours a day to cricket and other games. The boys are allowed to go where they please during play-hours, except in the city, which is out of bounds.

Our notice of the remaining schools must be even more meagre than the skeleton sketch we have given of the oldest of them. Next in date comes the royal foundation of Eton, or "The College of the Blessed Mary of Eton, near Windsor." It was founded by Henry VI., A.D., 1446, upon the model of Winchester, with a collegiate establishment of a provost, ten fellows (reduced to seven in the reign of Edward IV.), seventy scholars, and ten chaplains (now reduced to two, who are called "conducts"), and a head and lower master, ten lay clerks, and twelve choristers. The provost and fellows are the governing body, who appoint the head master, and claim the right to name the provost also, though this has always in practice been done by the Crown. Around this centre the great school, numbering now a thousand boys, has gathered, the college, however, still retaining its own separate organization and traditions. Besides the splendid buildings and playing-fields at Eton, the college holds real property of the yearly value of upwards of £20,000, and forty livings ranging from £100 to £1,200 of yearly value. The income of the provost is about £2,000 a year, and of the paid fellows £850. The offices of vice-provost, bursar, precentor, sacrist, and librarian have until recently been also held by fellows. King's College, Cambridge, stands in much the same relation to Eton as New College, Oxford, to Winchester, being fed by the King's scholars year by year, and having had until recently the practical monopoly of the masterships at the school. King's has been now thrown open to all Eton boys, oppidans as well as scholars. Besides the King's scholarships, there are sixteen other scholarships at the universities yearly competed for at Eton. The system of private tuition prevails there more than at any other of the public schools, and the school-work is consequently lighter. There is daily chapel with choral service on saints' days, at which the conducts, one of whom acts also as curator to the parish of Eton, officiate. The monitorial system scarcely exists at Eton, except in college, the sixth-form boys being, however, expected to preserve order, and having the right to fag, which is shared also by the fifth form. The river competes with the playing-fields at Eton, where rowing is at least as popular as cricket, and the cap-

tain of the boats even a greater personage than the captain of the eleven. The boys are free to go where they please in play-hours, including the town of Windsor; but are expected to "shirk," or, in other words, to run away, when they meet a master outside the playing-fields. The prestige of Eton, arising from its royal foundation and proximity to Windsor Castle, and its convenient distance from London, has made it the fashionable school for many generations, and has attracted to it large numbers of boys, the sons of rich parents, who look more to pleasant surroundings than high intellectual culture, and desire to provide them at an early age for their sons.

The school next in date stands out in sharp contrast to Winchester and Eton. It is St. Paul's School, founded by Dean Colet, the friend of Erasmus, A.D. 1512, for the teaching of a hundred and fifty-three boys "of all nations and countries." The number is that of the miraculous draught of fishes, which is supposed to have been the Dean's guide in fixing it. There is no distinction among the boys, as at Winchester and Eton, between scholars and commoners or oppidans, every boy having his education free, subject only to the payment at his admission of 4*d.*, "once and for ever, for writing of his name." Dean Colet was before all things a citizen (son of a famous Lord Mayor) and a radical reformer, and his notions of school management stand out in sharp contrast to those of Bishop and King. He will have no machinery of warden, fellows, and the rest, or allied college at the university, and has little confidence in clerical management. So he constituted the Mercers' Guild, of which he was an hereditary member, the governing body of his school, to whom he conveyed certain estates in Buckinghamshire for its maintenance. By his statute the masters, wardens, and assistants of the Mercers' Company are to choose annually two honest and substantial men of their fellowship as surveyors of the school, who shall take the charge and management for the year. The two surveyors, however, in practice only look after the accounts and pay the masters' salaries, referring all questions of management to the court of assistants of the company. The Dean's plan in its working contrasts in some respects favourably, in others unfavourably, with those of Bishop and King: favourably as regards the management of the estates. These in Colet's time produced an income of less than £200, which under the management of the Mercers' Company, has now risen to £10,000. And while the warden, provost, and fellows have absorbed the lion's share of the endowments at Eton and Winchester, the Mercers' Com-

pany have never raised the salaries fixed for the surveyors in 1602 at £4 a year apiece, while the expenses of the court of assistants in connection with the school have been kept under £250 a year. On the other hand, the nomination of the scholars has become a matter of patronage, each member of the court of assistance taking them in rotation. They have also jealously guarded their powers, so that the head master has less control than in other schools, not being allowed even the selection and appointment of his staff. This under Colet's ordinances consisted of a head master, a sur-master, and a chaplain, but has been enlarged to seven masters, with adequate salaries, the head master's being £900 with the rents of two houses at Stepney and a residence adjoining the school. There is no chapel attached to St. Paul's School, the original one having been burned in the great fire and never rebuilt; but Latin prayers, two of which were written by Erasmus, are read by the captain of the school twice a day. The whole of the head form (the eighth) act as monitors; but, as the school is practically a day-school, their powers and duties are limited. The school buildings still stand at the east end of St. Paul's Churchyard, fronting on one of the noisiest thoroughfares in the city. The suggestion of the Public Schools Commissioners for their removal to some more retired part of the metropolis, where a small playground or at least five courts and a gymnasium might be provided, is still under the consideration of the Mercers' Company. The exhibitions to the universities belonging to the school are (in the opinion of the late head master) too numerous and too easily obtained. No English school has a higher scholastic tradition than St. Paul's. William Lely, the grammarian and first teacher of Greek in London, was the first high master, and Camden and Leland among the earliest scholars, who have been followed by an illustrious succession from Milton to the present Bishop of Manchester. But of late there has been (the Commissioners remark) a growing tendency in the court of assistants to narrow the sphere of its operations, and convert it from a public school into a mere charitable foundation, useful to individuals, but of little public importance.

Shrewsbury School, which follows next in order of seniority, claims a royal foundation, but is in reality the true child of the town's folk. The dissolution of the monasteries destroyed also the seminaries attached to many of them, to the great injury of popular education. This was specially the case in Shropshire, so in 1551 the bailiffs, burgesses, and inhabitants of Shrewsbury and the neighborhood petitioned Edward VI. for a grant of

some portion of the estates of the dissolved collegiate churches for the purpose of founding a free school. The King consented, and granted to the petitioners the appropriated tithes of several livings and a charter, but died before the school was organized. It was in abeyance during Mary's reign, but opened in the fourth year of Elizabeth, 1562, by Thomas Aston, who soon drew to it not only the sons of citizens of Shrewsbury, but those of the gentry of Shropshire, and the neighboring counties. Sir Philip Sidney, Fulke Greville, and Robert Devereux, afterward Earl of Essex, were among his pupils. Discussions which at once arose as to the government of the school between the corporation of Shrewsbury and Mr. Aston, representing the Crown, were settled in 1577, temporarily, when the school ordinances were passed by which the Bishop of Litchfield was named visitor, the appointment of head master was vested in the master and fellows of St. John's, and the practical control and management in the town bailiffs and head master. There has been a long struggle over the foundation, the town contending for a practical monopoly of its emoluments and benefits, which, if successful, would have degraded Shrewsbury from the rank of a public school. It has ended by the adoption of the scheme of the Public Schools Commissioners, and the governing body now consists of thirteen members—three named by the corporation of Shrewsbury, three by the Crown, one by the each of the colleges of Christ Church, Oxford, and St. John's and Magdalen, Cambridge, the remaining four being elected by the governing body itself. The right of gratuitous education is limited to forty free scholars. The thirty-four scholarships and exhibitions to the universities have been thrown open. The monitorial system is carried out by twelve præpostors, who, upon entering office, engage in writing on the part of the school with the head master to do and prevent certain things. They read the lessons in chapel, call over the names, and represent the school before the head master. They have the power of setting impositions within certain limits but none of caning. Four fags are allotted to the præpostors' room, who serve by weekly rotation, laying breakfast and tea and running messages; but there is no individual fagging or fagging at games. The revenues of the school amount to £3,100 a year, arising almost entirely from tithe-rent charges. The head master's emoluments, including profits of his boarding-house, are about £2,000 a year.

(To be continued.)

ARTS DEPARTMENT.

[NOTE.—We publish this month Solutions to the Algebra Problems which appeared in the February issue; also, a few original and selected problems, which we trust will be of interest to the profession.
ARCH'D. MACMURCHY, M. A., Math. Ed., C. E. M.]

SOLUTIONS TO THE ALGEBRA PROBLEMS
FURNISHED IN FEBRUARY, BY MR.
W. J. ROBERTSON, B.A.

1. (a) $2a^2b^2 + 2bc^2 + 2c^2a^2 - a^4 - b^4 - c^4 = (a+b+c)(a+b-c)(b+c-a)(c+a-b)$.
But $2a+2b+2c=2x+2y+2z$ or $a+b+c=x+y+z$ and $a+b-c=z$, $b+c-a=x$, $c+a-b=y$. $\therefore$ substituting we have $(a+b+c)(b+c-a)(c+a-b)(a+b-c) = (x+y+z)xyz$.

(b). $(x+y+z)(xy+yz+zx) - xyz = (x+y)(y+z)(z+x) = 2a \times 2b \times 2c = 8abc$.

2. $(a^2+b^2+c^2)^3 + 2(bc+ca+ab)^3 - 3(a^3+b^3+c^3)(ab+bc+ca)^2 =$
 $(a^2+b^2+c^2+2ab+2bc+2ca) \{ (a^2+b^2+c^2)^2 + 2(bc+ca+ab)^2 - 2(a^2+b^2+c^2)(bc+ca+ab) - (bc+ca+ab)^2 \} =$
 $(a+b+c)^2 \{ a^2+b^2+c^2 - ab - bc - ca \}^2$
 $= \{ (a+b+c)(a^2+b^2+c^2 - ab - bc - ca) \}^2$
 $= (a^3+b^3+c^3 - 3abc)^2$.

$$3. \frac{1}{b} + \frac{1}{c} = \frac{4}{a}; \therefore \frac{b+c}{bc} = \frac{4}{a};$$

$\therefore ab+ac=4bc$.

Again: $(a+b-c)^3 + 2(b+c-a)^3 + (c+a-b)^3 = 2(b+c)^3 - 24abc + 6a^2b + 6a^2c$
 $= 2(b+c)^3 - 6a(4bc - ab - ac)$
 $= 2(b+c)^3$, since $4bc=ab+ac$.

$$4. a(b-c)^2 - c(b+c)^2 = 0;$$

$$\therefore \frac{a}{c} = \left(\frac{b+c}{b-c} \right)^2$$

$$\frac{\sqrt{a}}{\sqrt{c}} = \frac{b+c}{b-c}; \therefore \frac{\sqrt{a}+\sqrt{c}}{\sqrt{a}-\sqrt{c}} = \frac{b}{c}$$

$$\text{or } \frac{c}{b} = \frac{\sqrt{a}-\sqrt{c}}{\sqrt{a}+\sqrt{c}};$$

$$\therefore \frac{c}{b} \times \frac{\sqrt{a}+\sqrt{c}}{\sqrt{a}-\sqrt{c}} = \frac{\sqrt{a}-\sqrt{c}}{\sqrt{a}+\sqrt{c}} \times \frac{\sqrt{a}+\sqrt{c}}{\sqrt{a}-\sqrt{c}} = 1.$$

5. If $x+c$ be a measure of x^3+ax+b , then $c^3-ac+b=0$ or $b=ac-c^3$.

If $x+c$ be a measure of $x^2+a_1x+b_1$, then $c^2-a_1c+b_1=0$ or $b_1=a_1c-c^2$.

$$\text{But L.C.M.} = \frac{(x^2+ax+b)(x^2+a_1x+b_1)}{x+c} \\ = \frac{(x^2+ax+ac-c^2)(x^2+a_1x+a_1c-c^2)}{x+c} \\ = (x+a-c)(x^2+a_1x+a_1c-c^2) \\ = x^3 + (a+a_1-c)x^2 + (aa_1-c^2)x + (a-c)(a_1-c)c.$$

6. Divide as in the process of finding G.C.M., and put last remainder $=0$, the value will be found to be 5.

7. Put $x^4+px^3+qx^2+rx-s^2 = (x^2+mx-s)(x+nx+s)$. Multiply out and equate coefficients. Eliminate m and n , from the different $=ns$ thus obtained and the result is,

$$s^2 = \frac{p^2}{p-4q}.$$

8. Since $x^2+px+q=0$ has $=l$ roots $p^2=4q$; $\therefore q = \frac{p^2}{4}$; $\therefore ax^2+p(a+b)x+q(a+2b)$

$$= ax^2 + p(a+b)x + \frac{p^2}{4}(a+2b) = 0$$

$$= \left(x + \frac{p}{2} \right) \left\{ ax + \frac{p}{2}(a+2b) \right\} = 0;$$

$$\therefore x = -\frac{p}{2} \text{ and } x = -\frac{p}{2a}(a+2b).$$

$$9. \left. \begin{aligned} x^2(y+z) &= a^3 \\ y^2(z+x) &= b^3 \\ z^2(x+y) &= c^3 \\ xyz &= abc \end{aligned} \right\}; \therefore x^2y^2z^2$$

$$(x+y)(y+z)(z+x) = a^3b^3c^3; \text{ but } xyz = abc;$$

$$\therefore (x+y)(y+z)(z+x) = abc.$$

$$x^2(y+z) + y^2(z+x) + z^2(x+y) + 2xyz = abc;$$

$$\therefore a^3+b^3+c^3+2abc = abc; \therefore a^3+b^3+c^3+abc=0.$$

$$10. \quad x^3 + \frac{1}{x^3} + 3 \left(x + \frac{1}{x} \right) = m : i.e. \left(x + \frac{1}{x} \right)^3 = m$$

$$x^3 - \frac{1}{x^3} - 3 \left(x - \frac{1}{x} \right) = n : i.e. \left(x - \frac{1}{x} \right)^3 = n$$

$$= m; \therefore x + \frac{1}{x} = \sqrt[3]{m}$$

$$= n; \therefore x - \frac{1}{x} = \sqrt[3]{n}$$

$$\left. \begin{array}{l} x + \frac{1}{x} = \sqrt[3]{m} \\ x - \frac{1}{x} = \sqrt[3]{n} \end{array} \right\} \text{adding and subtract-}$$

$$\text{ing we obtain } x = \frac{\sqrt[3]{m} + \sqrt[3]{n}}{2} \text{ and } \frac{1}{x} = \frac{\sqrt[3]{m} - \sqrt[3]{n}}{2}$$

$$m \sqrt[3]{m} - \sqrt[3]{n}; \therefore 4 = m^{\frac{2}{3}} - n^{\frac{2}{3}}$$

11. If $x^2 + py^2 + qz^2$ is ÷ ble by $x^2 - (ay + bz)x + abyz$, it is ÷ ble by $(x - ay)(x - bz)$.
 $\therefore$ putting $x = ay$ we obtain $a^2y^2 + py^2 + qz^2 = 0$, (1).

Similarly putting $x = bz$ we obtain $b^2z^2 + py^2 + qz^2 = 0$, (2). $\therefore a^2y^2 = b^2z^2$ and $z^2 = \frac{a^2y^2}{b^2}$

substituting this value in (1) $a^2y^2 + py^2 + q \frac{a^2y^2}{b^2} = 0$: divide through by a^2y^2 , then $1 + \frac{p}{a^2} + \frac{q}{b^2} = 0$.

12. Since a, b, c are in H. P. $b = \frac{2ac}{a+c}$

$$\text{or } 2b^2 = \frac{8a^2c^2}{(a+c)^2}$$

Now $a^2 + c^2 > 2ac$; $\therefore a^4 + 2a^2c^2 + c^4 > 4a^2c^2$ (1), also $a^2 + c^2 > 2ac$ and $2ac = 2ac$;
 $\therefore 2ac(a^2 + c^2) > 4a^2c^2$ (2); $\therefore$ adding (1) and (2),
 $(a^2 + c^2)_2 + 2ac(a^2 + c^2) > 8a^2c^2$
 $\therefore a^2 + c^2 > \frac{8a^2c^2}{(a+c)^2} > 2b^2$.

13. (a). Let $s = 1^2x + 2^2x^2 + 3^2x^3 + 4^2x^4 + \&c$.
 then $s = 1^2x + 2^2x^2 + 3^2x^3 + 4^2x^4 + \&c$.
 $\therefore s(1-x) = 1^2x + 3x^2 + 5x^3 + 7x^4 + \&c$.
 $\therefore s x(1-x) = 1^2x^2 + 3x^3 + 5x^4 + 7x^5 + \&c$.
 $\therefore s(1-x)^2 = x + 2x^2 + 2x^3 + 2x^4 + \&c$.

$$\therefore s(1-x)^2 = x + \frac{2x^2}{1-x} = \frac{x(1+x)}{1-x}$$

$$\therefore s = \frac{x(1+x)}{(1-x)^3}$$

$$(b). \quad \frac{1^2}{2} + \frac{2^2}{2^2} + \frac{3^2}{2^3} + \&c. = \frac{\frac{1}{2}(1+\frac{1}{2})}{(1-\frac{1}{2})^3}$$

$$(\text{since } x = \frac{1}{2}) = \frac{\frac{3}{8}}{\frac{1}{8}} = 6.$$

14. Let $x = 1^{\text{st}}$ term and d common diff. of corresponding Arith. Progression, then :-

$$\frac{1}{x} - \frac{1}{x+d} = \frac{1}{4a+2b+c} \quad (1),$$

$$\frac{1}{x+d} - \frac{1}{x+2d} = \frac{1}{9a+3b+c} \quad (2),$$

$$\frac{1}{x+2d} - \frac{1}{x+3d} = \frac{1}{16a+4b+c} \quad (3);$$

$$\therefore \frac{x(x+d)}{d} = 4a+2b+c \quad (4) \text{ or } x^2+dx=d$$

$$(4a+2b+c) \quad (7)$$

$$\frac{(x+a)(x+2d)}{d} = 9a+3b+c \quad (5) \text{ or } x_2+3dx =$$

$$2d^2 = d(9a+3b+c) \quad (8)$$

$$\frac{(x+2d)(x+3d)}{d} = 16a+4b+c \quad (6) \text{ or}$$

$$x_2+5dx+6d^2 = d(16a+4b+c) \quad (9)$$

$$\text{from (7) and (8) } 2dx+2d^2 = d(5a+b) \quad (10)$$

$$\text{from (8) and (9) } 2dx+4d^2 = d(7a+b) \quad (11)$$

$$\therefore 2d^2 = d(2a) \text{ or } d=a,$$

$$\text{Substituting } a \text{ for } d \text{ in (10), we obtain } x = \frac{3a+b}{2}$$

$\therefore$ substituting a for d and x in (4) and simplifying we obtain $b_2 = a^2 + 4ac$.

15. The sum of the products will be the coefficient of x^m in the product of $(1+cx)$ $(1+^2cx)$ $(1+^3cx) \dots (1+^ncx)$.

Let $(1+cx) (1+^2cx) (1+^3cx) \dots (1+^ncx)$
 $= 1 + A_1x + A_2x^2 + \dots + A_n x^n$ write for x, cx , then

$$(1+^ncx) (1+^3cx) (1+^4cx) \dots (1+^cx) (1+^{n+1}cx) = 1 + A_1cx + A_2c^2x^2 + \dots + A_n c^n x^n$$

$$i.e. \quad \frac{(1 + A_1x + A_2x^2 + \dots + A_n x^n) (1 + ^{n+1}cx)}{1+cx}$$

$$= 1 + A_1cx + A_2c^2x^2 + \dots + A_n c^n x^n$$

Multiply out and equate coefficients : then

$$A_r + A_{r-1} c^{n+1} = A_r c^r + A_{r-1} c^r;$$

$$\therefore A_r = \frac{A_{r-1} (c^{n+1} - c^r)}{c - 1}$$

1, 2, 3, ... we get

$$A_1 = \frac{c(c^n - 1)}{c - 1}; A_2 = c \cdot c^2 \cdot \frac{(c^n - 1)(c^n - 1)}{(c - 1)(c - 1)} \dots;$$

and $A = \frac{c \cdot c^2 \cdot c^3 \dots c^m (c^n - 1)(c^{n-1} - 1) \dots (c^{n-m+1} - 1)}{(c - 1)(c^2 - 1) \dots (c^m - 1)}$
or $A = \frac{c^{\frac{m(m+1)}{2}} \cdot (c^{n+1} - 1)(c^{n-1} - 1) \dots (c^{n-m+1} - 1)}{(c - 1)(c^2 - 1) \dots (c^m - 1)}$

16. Since of $a, b, c, \dots, p$ are even and q odd; $\therefore$ of $(-1)^a (-1)^b (-1)^c \dots (-1)^p$ results will be $+1$, and q results -1 . The p positive results taken 3 at a time will give $\frac{p(p-1)(p-2)}{6}$; and q negative results $-\frac{q(q-1)(q-2)}{6}$.

Take 2, + results with 1, - result, and the whole product will be $-\frac{pq(p-1)}{2}$; also 2, - results, with 1, + result, will give $\frac{pq(q-1)}{2}$; $\therefore$ total sum $\frac{p(p-1)(p-2)}{6} - \frac{q(q-1)(q-2)}{6}$
 $+ \frac{pq(q-1)(q-2)}{6} - \frac{pq(p-1)(p-2)}{6}$
 $= \frac{1}{6} \{ (q-p)^3 - 3(q^2 - p^2) + 2(q-p) \}$

17. $(1+x)^n = 1 + A_1x + A_2x^2 + A_3x^3 \&c.$
 $(1+x)^n = 1 + B_1x + B_2x^2 + B_3x^3 \&c.$
 $\therefore (1+x)^n = 1 + (A_1+B_1)x + (A_2+B_2)x^2 + (A_3+B_3)x^3 + \&c.,$
equating coefficients : $A_3 + A_2B_1 + A_1B^2 + B_3 = 0.$

The following letter has come into our hands :—

I have been working out the questions in "Percentage," in Smith's and McMurphy's Advanced Arithmetic, and I find that I cannot solve the 35th.

If you will send me the Solution of it, you will confer a very great favour.

Answer, by Math. Editor, C. E. M. :—

By the question we see that a difference of \$18 on every qr. makes a difference of 15% on Rent.

\$18 on every qr. = $\frac{3}{20}$ (Whole Rent).
 $\pounds \frac{18}{20}$ on every qr. = $\frac{3}{20}$ (£96 + 56s. on every qr.)
 $\pounds \frac{18}{20}$ on every qr. = $\frac{3}{20}$ (£96 + $\pounds \frac{56}{20}$ on every qr.)
 $(\frac{18}{20} - \frac{3}{20} \times \frac{56}{20})$ £ on every qr. = $\frac{3}{20} \times \pounds 96.$
 $\frac{18}{200}$ £ on every qr. = $\frac{3}{20} \times \pounds 96.$
No. of qrs. = $\frac{3}{20} \times \frac{96}{1} \times \frac{100}{10} = 30.$

PROBLEMS.

I.—The longer side of a parallelogram is double of the shorter. Prove that the straight lines bisecting the four angles will inclose a rectangle, whose diagonal is equal to the shorter side of the original parallelogram.

II.—ABC is a triangle right-angled at C, and D such a point that AD is one-third of AB; prove that the square on CD is equal to the square on AD and one-third the square on AC.

III.—If the side BC of the triangle ABC be bisected at D, prove that the angle A will be acute or obtuse according as AD is greater or less than DB or DC.

IV.—(a). If $x + y + z = 1 + \left\{ \frac{2(1-x)(1-y)(1-z)}{x^2 + y^2 + z^2 + 2xyz} \right\}^{\frac{1}{2}}$, prove that $x^2 + y^2 + z^2 + 2xyz = 1.$

(b). If $a + b + c = 2s$, and $a^2 + b^2 + c^2 = 2S^2$, prove that, $(S^2 - a^2)(S^2 - b^2) + (S^2 - c^2)(S^2 - a^2) + (S^2 - b^2)(S^2 - c^2) = 4s(s-a)(s-b)(s-c).$

If $x = y + \frac{1}{z}$ and $y = z + \frac{1}{x}$, show that $z = x - \frac{2}{y}$.

V.—Shew that if $ax^4 + bx^3 + cx^2 + dx + e$ be a perfect square, then will $\frac{a}{e} = \frac{b^2}{d^2}$ and $c = \frac{bd}{4a} + \frac{2ad}{b}$.

VI.—Find the sum of the Arithmetic series in which the middle term and number of terms each equals $2p + 1$, p being any integer.

VII.—Find all the positive solutions less than 2π of the equation $\text{Sin } 3\theta = \text{Cos } 2\theta.$

VIII.—ABC is a triangle, a circle is described touching the side BC, and the other two produced at the points B', C' : find the length of the chord B'C'.

IX.—Prove that the coefficient of θ^{2n} in

$$\sum \cos \theta \text{ is } \frac{\theta^{2n}}{2n} \cos \frac{n\pi}{2}.$$

X.—ABCD is a square, O its centre, OE perpendicular to the side AD, F the middle point of OE ; a force of 3 lbs. acts from A to B, a force of 4 lbs from B to C, and a force of 5 lbs from C to D ; if the square be free to turn round a fixed pivot at F, find the force which, acting along AD, shall keep the square in equilibrium.

EXAMINATIONS IN GEOMETRY.

In answer to the question asked in the February number of the EDUCATIONAL MONTHLY, by our correspondent "Teacher," we print this month the notices given to the candidates who wrote for matriculation at the Universities of Edinburgh and London, and also the directions governing those who wrote in December last at the Cambridge Local Examinations. The meaning of these notices from the Universities' authorities to candidates just entering on their examinations clearly is, that they are allowed to use

only well-known abbreviations or contractions of words.

This is well, for two reasons at least. First, the learner of Mathematics would suffer a loss, if, at the beginning of his course, he were deprived of studying the subject as it is presented in such texts of Euclid as those of Todhunter, Potts, Colenso, &c. ; and secondly, the scholar will, at first, find it more difficult to acquire the amount of Mathematical knowledge contained in his Euclid, if it be presented symbolically, than in the ordinary method. The notices are as follows:

University of London, January, 1879. Candidates are requested to state the textbooks on geometry they have read for this examination. They are permitted to use all intelligible abbreviations in writing out their answers.

University of Edinburgh, 1878. All ordinary contractions may be used.

University of Cambridge Local Examinations, December, 1878. The only abbreviations admitted for the "square on AB," is "Sq. on AB," and for the "rectangle contained by AB and CD," "rect. AB. CD." All generally understood abbreviations or symbols for *words* may be used, but not symbols of OPERATIONS, such as —, +, ×.

MATH. EDITOR, C. E. M.

TEACHERS' ASSOCIATIONS.

THE HALTON COUNTY TEACHERS' ASSOCIATION held its half-yearly meeting at Georgetown, on Thursday and Friday, February 27th and 28th, and Saturday, March 1st. The President, Mr. R. Little, P. S. Inspector, opened the proceedings by delivering an address on the "Elements of Success in Teaching," in which he discussed several topics of prime interest, not merely affecting the interest of the teacher, but as they contributed to the success of the schools. Said Mr. Little—Unless all the elements of school machinery work harmoniously toge-

ther, the result cannot be successful. When feelings of antagonism, whether of politics, of religion, or of society agitate the community, and the people take sides, it cannot be otherwise than disastrous to the school. In small sections, where there is only a limited area to be assessed, the trustees can only offer low salaries, thus driving attainable men out of the profession. The speaker held that small sections are undesirable as they diminish the salaries, and thus limit the educational privileges of the residents. For this evil there are two remedies, one is to form boards

of township trustees, and the other to give the township councils power to levy a uniform tax. A school can best be made successful by paying a liberal salary, thus encouraging teachers to do their work well. Trustees should supply all necessary apparatus for the convenience of teachers; they should also care for the health and comfort of the pupils by providing suitable desks, and see that proper ventilation exists in the schools. The lecturer concluded by urging trustees to visit the schools as often as possible, thus stimulating the teacher, and expressing the interest felt by school authorities in his work.

Mr. N. J. Wellwood, H. M. of the High School, Oakville, followed with an instructive paper on the "Teaching of Geometry," which he illustrated by interesting examples.

The Rev. James Pringle, of Georgetown, delivered an interesting address on "The School Systems of Ontario and Quebec." Mr. J. M. Buchan, M.A., High School Inspector, occupied the afternoon session in discussing "Grammatical Analysis" and "English Literature," and the methods of teaching these subjects. Mr. Buchan also lectured in the evening, on "Poetry and Politics." Both addresses were exceedingly instructive, and were listened to with manifest interest. The following day, Mr. Moore, of Georgetown, ably handled the subject of "Composition," and Mr. McLean, of Milton, read a stimulating paper on "Professional Study and Courses of Reading." In the afternoon, Mr. D. J. McKinnon, P. S. I. of Peel, introduced the subject of "Moral Training," which brought on some discussion; after which Prof. Young delivered his lecture on the "True Relation of Psychology to Education." The Professor placed the principal points to be discussed on the board, which he handled with great clearness. The points were: I., good bodily health; II., faculties unexhausted, under which head he argued that lessons should not be enforced after fatigue points have been reached, and that there is no advantage in long school hours; III., concentration, when he referred to the influence on perception and retention, and the formation of habits of concentration; IV.,

pleasure in work, shewing how this aids the pupil, and also why pupils so seldom take pleasure in their work; V., pleasure in prospect, which was not so important as the preceding subject, yet an important factor. The lecturer thought the approbation of the teacher a better way of having pleasure in prospect than by the giving of prizes; VI., absence of undue emotional excitement, and its effect on the pupil's power of study; VII., objects to be studied, which should be actually presented to the pupil and not merely explained. These points were all thoroughly discussed; the lecture proving a very profitable one.

In the evening, Dr. McLellan lectured on "This Canada of Ours," and next morning gave many useful hints on "Teaching Algebra," after which the convention closed by re-appointing its principal officers. Mr. R. Little, President; Dr. Lusk, Vice-Pres't.; and Mr. R. Coates, Secretary.

WATERLOO COUNTY TEACHERS' ASSOCIATION.—The Annual Meeting of the above Association was held on January 24th and 25th. After the formal opening, the President, Mr. R. Alexander, gave an interesting address on "Spelling Reform." The following subjects were then freely discussed:—

1st Day.—Mathematical Geography, (introduced by Mr. A. Müller); Factoring in Algebra, (Mr. D. P. Kelleher). Reminiscences of a Trip to the Highlands in 1878, (Mr. S. McRae); Teachers' Residences, (Mr. S. Eby). Selection of subjects for next County Promotion Examination, Question Drawer.

2nd Day.—Should the task of training candidates for 3rd Class certificates be imposed on our Public Schools? (Mr. R. Cruikshank); How to teach Canadian History (Mr. C. S. Falconer); Our Text-Books, (Mr. R. H. Knowles); How to Teach Geography to 2nd Class, (Mr. C. Hagedorn); Teaching Reading, (Mr. A. McLean); Question Drawer and Reading of Delegate's Report of Provincial Teachers' Association.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

PRINCE LEOPOLD ON EDUCATION.

H. R. H. Prince Leopold has been recently making two speeches in London, on the subject of education, which are well deserving of the notice of the public. The least enthusiastic person would be prepared to allow, that not only in their thought, but also in their purity of diction they are remarkable productions for a young man of under twenty-six. And it is only natural that they should possess especial interest as coming from a Prince of the blood, and a son of the Prince Consort. We propose, therefore, to call attention to some of the more remarkable passages.

The first of these speeches was delivered at a meeting held at the Mansion House, on February 19th, last, on the subject of University teaching. The meeting had been convened at the instance of the London Society for the extension of University Teaching. Prince Leopold in proposing a motion—after remarking how gratifying it was to Englishmen to see the part the old Universities, of which they are so proud, had taken of late in important educational reforms, continued :

There is, however, one advantage possessed by German Universities which must strike everybody. They diffuse knowledge throughout a much wider class of the community than Oxford or Cambridge have hitherto reached. Learning in England has been too much regarded as the privilege of a particular class. The conditions of residence at Oxford and Cambridge, however valuable or necessary for their own purpose, have kept away students of narrow means. The University of London has in a great degree removed this barrier, and now the older Universities unite with her in offering to all Londoners a cheap course of instruction, given by teachers of the same calibre as those who carry on the work of the Universities themselves. The undertaking of this great

additional task indicates that a very strong spirit has arisen in those old seats of learning. I cannot call it a spirit of benevolence, for these lectures are in no way a work of charity, and will, it is hoped, be self-supporting after the first few years. But it is a spirit of active sympathy with the wants and wishes of a very large class, whose needs in the direction of higher education have been too long ignored ; and the impulse of which these London lectures are the outcome is not shown in one way only, or felt in one University alone. It is to Professor Stuart and other Cambridge men that we owe the establishment of those systems of lectures in the great manufacturing centres which are gradually developing into permanent institutions strong and living children of the Alma Mater who gave them birth. But it is not only in Cambridge that it has been felt that men of learning and of culture could hardly have a worthier aim than that of carrying high thoughts and elevating knowledge into homes which perhaps know few other joys. Of such aims we in Oxford have had a great, an inspiring example. We have seen a man in whom all the gifts of refinement and of genius meet, and who yet has not grudged to give his best to all—who has made it his main effort, by gifts, by teaching, by sympathy, to spread among the artisans of Sheffield and the labourers of our English fields the power of drawing the full measure of instruction and happiness from this wonderful world, on which rich and poor can gaze alike. Such a man we have seen in Professor Ruskin. And among all the lessons which those who have had the privilege of his teaching and of his friendship must have gained to carry with them through life, none, I think, can have sunk deeper than the lesson that the highest wisdom and the highest pleasure need not be costly or exclusive, but may be almost as cheap and as free as air, and that the greatness of a nation must be measured not by her wealth or her apparent power, but by the degree in which all her people have learnt to gather from the world of books, of art, of nature, a pure, and an ennobling joy.

The remainder of the speech was occupied with a consideration of the work that lay before the society in London.

The second speech was delivered on February 25th, at the distribution of prizes in the Birkbeck Literary and Scientific Institution. This second speech, perhaps, contains more that is remarkable in it than the former. It exhibits in a marked degree the strong love of culture and the sincere sympathy with popular progress which is the truly pleasing feature of both speeches. After a few introductory remarks, His Royal Highness said :

I am particularly glad to see the stress which your programme lays on technical education. We Englishmen may be justly proud of the character for mental and physical strength and capacity which our artisans bear all over the world ; but our pride is sadly dashed by accompanying criticisms on the ignorance and the indifference to anything which needs thought, which too often render that native vigour of intelligence a comparatively useless thing. Properly instructed, I believe that our British artisan need fear no rival in the world ; but if he goes out untaught and ignorant into the battle of life, he is in danger of being outdone by the more carefully trained skill of foreign workmen. Against this danger your institution offers a bulwark whose importance it would be hard to overrate. I am glad, too, to see the eagerness with which modern languages are learnt in your classes. Foreign nations are not merely our competitors, but our friends, and nothing, I believe, is likely to create so true a feeling of friendship and sympathy between one people and another as a practical knowledge of each others speech. Sometimes, perhaps, as the proverb says, we take what is unknown to be magnificent, but oftener, I think, we take it to be something unfriendly and distasteful to us—something which if we did know it we should not like. But we find that with every real increase of understanding of our fellow men of different races some unkindly illusion disappears ; we learn to realize their likeness to ourselves, to sympathize with their national character, to co-operate in their efforts after the common good. But I need not go at length into the advantages to be derived from each of the subjects which your curriculum embraces ; there is not one which may not be of great service to the practical career or to the mental development of the zealous student. And there is so much similarity in the conditions of all effort and success, that even the studies which seem most remote from active life may always furnish a moral which life can adopt and employ. For instance, I notice that in what is called the "Miscellaneous Department" of your curriculum you

provide instruction in the game of chess. This is not the most obviously practical of your subjects ; but it has struck me that even those, if any there be, who desire to limit their education to this branch alone, may learn some not unimportant lessons of life from the manner in which you teach it. "Particular attention," I see your programme says, "is paid to the study of the openings." Now, is it not true that in life, as in chess, it is often the opening, and the opening only, which is under our own control ? Later in the game the plans and wishes of others begin to conflict unpleasantly with our own. Sometimes it is as much as we can do to avoid being checkmated altogether. But for the first few moves we are free. We can deploy our pieces to the best advantage ; we can settle on the line of action which best suits our powers ; and we sometimes find that it will repay us to sacrifice a pawn or a piece so as to gain at once a position which may give us a decided advantage throughout the whole game. Does not this, too, remind us of early life ? Must we not often be content to sacrifice some pawn of present pleasure or profit to gain a vantage ground which may help us to successes which self-indulgence could never have won ? I am sure that among the bright young faces which I see around me there are many who have known what it is to labour against the grain ; to begin a lesson when they would rather have gone to the theatre, to finish it when they would rather have gone to bed. And I am sure that such efforts of self-denial and conscientiousness form at least half the real benefit of education ; that it would do us little good to wake up and find our heads magically stocked with all manner of facts, in comparison to the good which it does us to fight for knowledge, to suffer for her, and to make her at last our own. In great things as in small, this principle of self-help is a peculiarly English spirit. How much has been accomplished in this country by private initiative, by spontaneous growth ! We have trusted that men like Dr. Birkbeck would arise—men who felt the needs of others as their own, and could not rest without spreading widely round them the privileges which they had themselves enjoyed. We have trusted that such men would arise, and they have arisen.

* * * * *

Learning is a commodity the demand for which grows with the supply. We need not fear a glut of science or of intelligence as we might fear a glut of cotton goods or of indigo. All the knowledge which we who now live can gain, can assuredly be made useful both to ourselves and to those who come

after us. It was his firm conviction that a sound education can never be too widely spread or too eagerly enjoyed which was the source of Dr. Birkbeck's claim to the gratitude of prosperity. He saw that the knowledge of truth was not meant to be the privilege of a class or of a set. In an age when the strongest prejudice existed against the education of the poor, he, as far as in him lay, threw open to the poor an education as sound and extensive as his own. In an age when the strongest prejudice existed against the education of women, he earnestly claimed for women their fair share in the educational privileges of men. He was for spreading the banquet of knowledge before all alike, and he trusted that nature would see that the Benjamin's mess fell to the lot of those who had the keenest appetite and the strongest digestion. And if all these seem common-places now, we must remember that, as it has been said, "the commonplaces of one generation were the paradoxes of the last." How could they ever have become common-places but for the ardour of conviction which inspired a few far-seeing men? And how far greater a thing is this spirit of personal, practical, rational benevolence than any mere gifts of money can be? Dr. Birkbeck—and in speaking of him I speak also of his friends and coadjutors and of the son who now so worthily fills his father's place.—Dr. Birkbeck was, no doubt, even in the mere matter of money a most generous man. But it was not his pecuniary generosity which has caused his name to become the household word which it is to-day. It was because he gave to his great work something far more precious and rarer than money—the intelligent and single-hearted devotion of a life. We honour him, not so much because he helped others from without, as because he touched the chords, he evoked the impulses which enabled them to help themselves from within. It is not for his endowments that we thank him most, but for his example; as, indeed, for any institution its founder's high example is the best of endowments; and the most enduring legacy which a man can leave to his country is a memory which impels the men who come after him to strenuous efforts and to exalted aims.

The above seem to be the best passages out of two most striking speeches. They may well cause a loyal subject in any part of the Empire to feel an emotion of pride that the old historic throne of England can show Princes and Princesses so worthy of their high position. And the man who cannot distinguish such an emotion of pride from "Flunkeyism," had best remember Carlyle's

retort to the proverb, that "No man is a hero to his own valet," namely, "that that is because the valet is a valet, and not because the hero is not a hero."

BROTHER IGNOTUS.

PROFS. BLACKIE & BONAMY PRICE ON THE STUDY OF THE CLASSICS.

The question of the place of Greek and Latin in modern education, is discussed in the *Contemporary Review* for March, by Professor J. S. Blackie, and Professor Bonamy Price; the first advocating "A Radical Reform in Teaching the Classical Languages," and the latter giving his views "On the Worth of a Classical Education." Prof. Blackie considers it certain that "Greek and Latin as an intimately related and closely interlacing whole," cannot "stand in the same relation to the culture of the eighteenth (*sic*) century that they did to the culture of the sixteenth century. . . . New circumstances have arisen, new tasks are to be performed, new tools are to be provided, new training is necessary. Whoever denies this is blind both before and behind; great changes cannot take place in society without corresponding changes taking place in the three great organs of social life, the State, the Church, and the School And this diminished influence of the classical languages, as against the rich growth and influence of modern culture, is asserting itself more and more every day, and will continue to assert itself. In the face of this fact, the inculcators of classical lore at school and college must in the nature of things abate their demands considerably; and, if they wish to make this abatement less serious, they must by all means in the first place change their tactics, and improve their drill. In other words, whatever loss in certain directions may fall to the higher English culture from the extrusion or subordination of one or both of the classical languages from school or college, may be reduced to its minimum by a dexterous change of front and an improved practical drill." The inordinate time and energy at present expended in English schools and colleges on the ancient

tongues, and the very unsatisfactory results, Prof. Blackie considers just causes of complaint, and attributes them to the fact that "your classical teacher in one of our great English schools sets" the method of Nature "flatly at defiance, and substitutes for it artificial methods of his own, which have no germ of healthy vitality in them, and from which no vigorous growth, luxuriant blossom, or rich fruitage can proceed." The radical reform for which he pleads is that "in opposition to this strange tissue of absurdities and perversities, in which our indoctrinators of the classical tongues have entangled themselves, we must recur at once to the natural method, commencing not with abstract rules and paradigms, but with living practice from which the rules are to be abstracted and the paradigms gradually built up. The essential elements of this reform are a speaking teacher, with a correct elocution, and a collection of interesting objects on which the thinking and speaking faculty of the learner shall be regularly and continuously exercised." With a willing pupil and two hours a day of direct teaching, and a couple more of study by the learner, Prof. Blackie guarantees that under this conversational method "he shall learn as much Greek in six months, as under the ordinary scholastic method he may often learn in six years;" and enlarges at some length on the advantages that would flow from the reform he proposes.

That Greek and Latin would be more rapidly and more thoroughly learned were his suggestions adopted, we have no doubt; for they are based on those "first principles" of teaching which require that in education the simple should precede the complex, and the concrete the abstract. But Prof. Bonamy Price puts more radical and more important questions when he asks "What is the worth of a classical education? Why should boys spend so many years on the study of the Greek and Latin languages? What results are obtained to compensate for so much time, labour, and expense consumed on such an occupation?" In giving his answers to these questions we must by no means be understood as fully assenting to his views. He says: "I hold that the nation judges rightly in ad-

hering to classical education: I am convinced that for general excellence no other training can compete with the classical. In sustaining this thesis, I do not propose to compare here what is called useful education with classical, much less to endeavour to prescribe the portion of each which ought to be combined in a perfect system. . . . Let it be taken for granted that every boy must be taught to acquire a certain definite amount of knowledge positively required for carrying on the business of life in its several callings; and, if so it be, let it be assumed that there is a deficiency of this kind of instruction at the public schools. Let that defect be repaired by all means. .

. . . Let all interference of Greek and Latin with this indispensable qualification for after-life be forbidden; but let us at the same time maintain that both things may go on successfully together. The problem before us here is of a different kind. The education of the boys of the upper classes is necessarily composed of two parts,—general training, and special, or, as it is called, useful, training—the general development of the boy's faculties, of the whole of his nature, and the knowledge which is needed to enable him to perform certain specific functions in life. Of those two departments of education, the general far transcends in importance the special: and finally I maintain that for the carrying out of this education, the Greek and Latin languages are the most efficient instruments which can be applied."

Their chief merits Prof. Price considers to be four in number. First, that "they are languages: they are not particular sciences, nor definite branches of knowledge, but literatures." On the cultivation of taste and the refinement of the powers of expression which they induce in this respect, he thinks too much stress has been laid." The educational value of Greek and Latin is something immeasurably broader than this single accomplishment of refined taste and cultivated expression. The problem to be solved is to open out the undeveloped nature of a human being; to bring out his faculties, and impart skill in their use; to set the seeds of many powers growing; to teach as large and as varied a knowledge of

human nature, both the boy's own and the world's about him, as possible; to give him, according to his circumstances, the largest practicable acquaintance with life, what it is composed of, morally, intellectually, and materially, and how to deal with it. For the performance of this great work, what can compare with a language, or rather with a literature? . . . Think of the many elements of thought a boy comes in contact with when he reads Cæsar and Tacitus in succession, Herodotus and Homer, Thucydides and Aristotle: how many ideas he has perforce acquired; how many regions of human life—how many portions of his own mind—he has gained insight into; with how extended a familiarity with many things he starts with, when the duties of a profession call on him to concentrate these insights, these exercised and disciplined faculties, on a single sphere of action. See what is implied in having read Homer intelligently through, or Thucydides, or Demosthenes; what light will have been shed on the essence and laws of human existence, on political society, on the relations of man to man, on human nature itself." As to the exercise of the reasoning faculty, Prof. Price says: "I confidently assert that for the purposes of making a youthful student think long and accurately, and of forcing upon him the perceptions of the efficiency and the results of right reasoning, no better tool can be applied than a speech in Thucydides, a discussion in Aristotle, or a chapter in the Epistles of St. Paul."

Prof. Price grows very eloquent over the second merit of the classical languages as an instrument of education; the greatness of the works they contain, and of the writers who made them. . . . "In no language can an equal number of writers of the very first eminence be brought to bear on the formation of a youthful mind as in Greek. In poetry, history, philosophy, politics, page upon page of the most concentrated force, of the tersest expression, of the richest eloquence, of the nicest and most subtle discrimination, of the widest range and variety, strike successive blows on the imagination and the thinking faculty of the impressible

student: they disclose to him what human nature is capable of, what is waiting to be called forth in the boy's own spirit, the heights which others have reached, the thoughts and feelings he may himself create—in a word, all the wondrous powers of the human intellect, all the noble emotions of the human soul. What more direct and more efficient remedy against one of the most common and most damaging weaknesses—onesidedness? . . . Nor must we leave altogether unnoticed," says the writer, "the beauty of form which distinguishes these undying writings." The third merit which Prof. Price claims for classical education has not hitherto, certainly, been recognized as an advantage on its side, namely, that "Greek and Latin are dead languages: they are not spoken tongues." The very characteristic which Prof. Blackie proposes to reform away by introducing the natural and conversational method, Prof. Price thinks a "merit of the very first order." The very reform which the one would introduce in their teaching, would cancel much of their usefulness in the eyes of the other. He says: "Living languages are learnt by the ear;" (which is what Prof. Blackie would have in the case of dead languages) "they are imbibed without thought or effort; they would awaken little reflection or judgment; their possession does not necessarily imply any great development of mind or soul. . . . The difficulty involved in learning a dead language is an excellent feature. . . . Such languages must be learnt by rule. They call on the mind to perceive the relations of grammar at the outset." True, and with Prof. Blackie we say, they thus set the method of nature flatly at defiance, and run counter to the normal course of mental evolution. A further advantage, according to Prof. Price, is that "not only are the languages dead, but also the societies to which they belong. . . . This fact both enables pupils in the educational process to study classical writings without wakening up the interest, the prejudices or the passions of modern life, and it affords an incomparable facility for examining and apprehending first principles."

Prof. Price also urges on behalf of classical education "the field which it opens to the action of the teacher, the close contact which it establishes between the mind of the boy and the mind of his master, the power with which it enables the whole nature of the teacher, his character and intellect, to influence and mould the nature of his pupil.

This is the greatest work in education—the development of one human being by another." Decidedly; and we can only say that, as this is the last merit which Prof. Price claims for a classical education, so is it the last that we should ever have thought of claiming for it.

A. W. GUNDRY.

CONTEMPORARY LITERATURE.

MENTAL ARITHMETIC, Part II., by J. A. McLellan, M.A., LL.D. Toronto: Adam Miller & Co.

In the preparation of school text-books, more especially of those designed for younger pupils, the utmost care, even when bestowed by experienced educators, has too frequently failed to give a result at all commensurate with the time, skill, and labour devoted to the work. The various subjects treated of must be brought fully within the comprehension of the pupils for whom the book is intended; the different parts of the work must be presented in their natural sequence, and a proper gradation from simpler to more complex results secured. Nor must too great simplicity be aimed at, something of real work must still be left for the student himself to accomplish, not so difficult as to be beyond his reach nor even to tax his powers too severely, but yet sufficiently so to be "worthy of his steel," and keep his faculties in constant healthy exercise.

The text-books which have been most successful, best liked by students, and longest retained in use, have been those prepared by teachers of acknowledged ability and long experience. These it is not invidious to say have, in the main, been the product of the authors of the mother-land, or of the United States. To such older communities it is not unnatural that we should be beholden for our school-book supply, as to them also we are indebted for the mass of our general reading matter. That we should endeavour to create a school-book literature

of our own, and to supply the schools with the works of native authors, is a laudable and patriotic, if ambitious, desire, with the execution of which we should be the last to interfere. Our only scruple in the matter is lest the work turned out should be jejune and inefficient, or being otherwise, that it should be marred by careless and inapt work. In the book before us, though the author is a man of ability and a good mathematician, his work is disfigured by such blemishes as are sure to appear in the productions of those who have not had experience in authorship. School-book compiling particularly, as we have heretofore said, requires exceptional talent, or a long apprenticeship, before it can be of a character suited for the purpose and uses of its work. If it is not favoured with these conditions, the product can rarely be satisfactory. In Dr. McLellan's case, as we have elsewhere pointed out, there are other circumstances which interpose to prevent his work from becoming generally acceptable. And though the circumstances be regretted, if that gentleman has the gift of effective authorship and would do honest work, yet his duty is to respect the proprieties of his official position, and to abstain from publishing. We have no desire to say a harsh word, personally, of the Senior Inspector, or of any of our would-be authors or editors, but our concern for the best interests of the schools compels us to protest against this duality of representation, which in Dr. McLellan's case, presents him as an author of school books and at the same time an Inspector of the

schools in which they may or may not be used. Since writing the references elsewhere to this subject, we have noticed the action of the Minister of Education in the official instructions issued to the profession to guard its members against becoming agents for publishers. Commendable as these regulations are, it will be obvious that they do not directly touch the matter we have referred to, and we trust that the Minister will see this, and practically, and finally, abolish the evil complained of. But to the book before us:—The Mental Arithmetic, Part II., of Dr. McLellan, possesses many of the essential elements of a bad text-book. It contains mistakes ranging from badly corrected proof to erroneous solutions of important problems. It is not properly graded, the simplest problems being found in the last half of the book; the solutions given are often too long and too intricate for mental exercise, and are too frequently not the simplest that might be given, nor the best adapted to train the mind of the pupil to habits of close mathematical reasoning. We scarcely know whom we should hold accountable for such errors as these: $1\frac{2}{3} \div \frac{1}{2} = 1\frac{1}{3}$; $74 \times 6 = 644$; 140 is $\frac{2}{3}$ of 3502. Perhaps, too, the responsibility for the following may be doubtful: \$100 amounts to \$114 in one year and eight months, at eight per cent. But no possible doubt can exist in cases such as these:

“By selling tea which cost 48 cents a lb., I lost $11\frac{1}{2}$ per cent. of the selling price: what was the loss per cent. on the cost?”

“Sol.— $\frac{1}{2}$ of selling price lost $\therefore \frac{2}{3}$ of do = cost $\therefore \frac{1}{3}$ cost lost = $12\frac{1}{2}$ per cent.”

“A man is engaged to work at \$1 a day and his board, with the understanding that he is to pay $37\frac{1}{2}$ cents a day for his board when idle: what must be the proportion of working time so that he may just keep out of debt, supposing that he works whole days and not parts in every case?”

“Sol.—Wages \$8; loss on idle days = \$ $1\frac{1}{8}$, C. M. = \$88 = 11 working or 8 idle days $\therefore \frac{1}{11}$.”

In the first of these since $\frac{1}{2}$ of the selling price = $\frac{1}{3}$ of the cost $\therefore$ required result is $2\frac{1}{2}\%$; and in the second problem since three days' wages will pay his board for eight

days, he only need work three days out of eleven.

These are grave errors and can only be accounted for by attributing to the author culpable carelessness in the preparation of his book.

The work, again, contains too many solutions. A very trifling modification in a problem furnishes a pretext for giving a model for solving it. Even when no modification can be detected, we have separate solutions given. Thus each of the following questions is solved:—

1. A boy spends 1 cent of every 5 cents he has, how many does he spend of 20 cents?

2. A boy spends 2 cents of every 6 he has, how many does he spend of 30?

3. If he spends 4 out of every 10, how many does he spend of 60?

And no attempt is made to vary the solutions, the three being as nearly alike as the numbers used will permit. Nor are these solitary instances; needless solutions occur on nearly every page. So frequent are the solutions, in fact, that throughout the whole book, there is not, on an average, three unsolved questions for each question solved. The direct effect of this method of training is only too manifest. Independent effort receives no encouragement; the faculty for original investigation remains undeveloped, and new impetus is given to perpetuate “the rule and routine methods that have too long prevailed.”

Too many of the solutions, on the other hand, are such as cannot be grasped by the mind of the average student as exercises in Mental Arithmetic. Some of these should be excluded on account of their length, occupying as they do, fully half a page of the book; others on account of their intricacy; being in reality simultaneous equations of three unknown quantities.

The “commission” question, page 16, is the only one mentioned in the preface, and may therefore, we suppose, be taken as having received from the author full consideration in its solution, yet even in this the most direct solution has not been reached. The following appears to us to be the much simpler solution: after the first com. has

been deducted there remains $\frac{1}{100}$ of the value of the flour and the amount invested in tea is $\frac{1}{100}$ of this $\frac{1}{100}$ which = $\frac{1}{10000}$ of the value of the flour. $\therefore$ the remaining $\frac{1}{100}$ must have gone as commission, &c.

Other instances might be adduced, but we have given enough to bear out our assertion respecting the unfitness of the work as a school text-book in its present objectionable shape. When the numerous errors shall have been looked out and corrected, and the number of model solutions reduced to about one-third of their present number, we shall not have so much fault to find with the book. But until this is done, we cannot consider it a proper text-book to be placed in the hands of pupils.

That the work should find its way into the schools, without the authorization of the Department, is, of course, a matter with which the Minister will have to deal; and if sanctioned, the propriety of authorizing a book by an official who stands in the relation that its author does to the schools of the Province, is a question that must then come up for settlement.

ENGLISH MEN OF LETTERS; edited by John Morley. SAMUEL JOHNSON, by Leslie Stephen. OLIVER GOLDSMITH, by William Black. Macmillan & Co. Toronto: A. Piddington.

It is, presumably, part of Mr. Morley's plan to have the lives of English authors which he is editing, written afresh for him. We might otherwise question the necessity of Mr. Stephen being set to produce a new biography of Johnson. Besides the larger and more pretentious works upon this subject, the world already possesses several succinct lives of the great writer and conversationalist. Two men of very differing tastes and styles, Macaulay and Carlyle have given us widely circulated pamphlets, embracing as much as Mr. Stephen offers us, besides the incidental allusions to Johnson that are to be found in the "Heroes and Hero Worship," and the review of Croker's edition of Boswell, by Macaulay. However, there is always room for a new work even if it have few pretensions beyond being a compilation,

and as such we welcome the present book. We notice in it several inaccuracies of diction which we should have thought Mr. Morley would not have let pass. At page 39 we find the following peculiar passage: "Any systematic training of the historical processes by which a particular language has been developed, was unknown." We can imagine a scholar being trained in the knowledge of such historical processes, but the processes themselves are not usually supposed to be particularly amenable to any kind of "training," however dexterous. A worse instance of the grossest carelessness is to be seen at page 46, where the point of the famous letter to Lord Chesterfield is most culpably lost by the twice repeated substitution of the word "loss" for the word "less." Johnson would have been enraged had he known that any one who aspired to write his life could have been capable of such a blunder. One other solecism must content us for the present. At page 92 we are told that Boswell "remains *as* not only the first but the best of his class." It would puzzle Mr. Stephen to tell us what good end the word "*as*" subserves in this sentence.

Mr. Black's Goldsmith is perhaps free from such mistakes,—but it is not quite free from them. He condemns his author's accentuation of "Niaga'ra" in the "Traveller," apparently oblivious that it is by virtue of common law of the degradation of words that the accent has travelled backwards and that the modern English barbarism Niag'ra has become the usual pronunciation. A worse fault, however, is the occasional ostruding of himself by Mr. Black upon the reader. He is at his old game again, if we may venture the expression, and lugs his favourite deer-stalking and Scotch-yachting experiences neck and crop into the life of a man who would have run away from a stag and probably been extremely ill in a schooner off the Hebrides. Mr. Black also makes little too much fuss about the obtuseness which several of Goldsmith's associates showed as to the real nature of the little man. There can be small doubt but that Oliver's Irish wit was occasionally too delicate.

Goldsmith to appreciate, and Goldsmith has not credit for being extremely vain, jealous, and conceited when he did not really deserve it. But after all, we must remember that the defence merely amounts to this, that Goldsmith jocosely pretended to be inordinately vain-glorious and put on airs that were taken *à sérieux* by his graver comrades. Such a peculiar turn of humour, so frequently repeated, although so steadily misunderstood, must, we should think, have had its root in a natural bent of the mind towards these qualities, the outward manifestations of which it served to cloak and disguise. In either view of the case it is one of the least revealable sides of Goldsmith's character.

Mr. Black has done his best to assure those to whom the author of the "Vicar of Wakefield" is dear, that their favourite was not so hardly used by the world as it has been in the fashion to picture him.

He fell on his feet pretty luckily throughout his life, and his distresses were generally attributable more to his own reckless mode of living than to any lack of appreciation on the part of the booksellers or the public. It was much of his own accord that he wrote the lucrative but worthless compilations that took up so much of his time, but we need not think him entirely sordid in so doing. It is quite conceivable that he may have expected to gain lasting fame from his histories and "Animated Nature." That such subjects when properly handled *do* bring fame to the poets who, casting aside the muses for a moment, come down to mingle with the crowd of ordinary mortals, may be seen by the instance of Southey, who will probably be remembered by his "Life of Nelson," long after his "Thalaba" shall have been forgotten.

These two lives we have mentioned together as forming companion volumes to each other. In fact several episodes, as for instance the club life in London, are common to both. We can recommend them to the perusal of those readers who cannot go to the fountain-heads for information as to either of these two great men.

ARCHBISHOP TRENCH ON THE STUDY OF WORDS. 17th Edition.—ENGLISH, PAST AND PRESENT. 10th Edition. London: Macmillan & Company.

More interesting books than these, and more likely to lead one on to deeper research in philology, could hardly be put into the hands of the student. And yet in very many instances we find the Archbishop astray both in his ideas and his facts. Take for example the very pointed instance that occurs on the second page of the "Study of Words." He is denouncing the saying that "ignorance is the mother of admiration," and throughout his remarks it appears that nothing more than the vulgar modern meaning of the word admiration was present in his mind.

Had he reflected for a moment and remembered that the word really means "wonderment," he would have hesitated before condemning the proverb. Of course, even with this correction, the saying, like all other epigrammatic remarks, only expresses half a truth. The ignorant man wonders superficially at this, that and the other, wonders why the sea has tides and the moon has phases. A little learning extinguishes this faculty of wonder, and the ordinary man ceases to be astonished, for he is perfectly satisfied by a single word, "gravitation" for instance. No doubt on a higher level the wondering mind is again called into play, but this may be said to be on account of the recognition of that ignorance which was not understood by the clown and which was ignored by the empirical observer.

Again we find in a note at page eleven the astounding assertion that the word "frank" is found in English in the sixteenth century, "but scarcely earlier." As part of the compound words "frank-tenement, frank-marriage, franc-almoigne," it occurs over and over again in Littleton (ob. 1491), and was in use long before his time. The view of frank-pledge or court-leet, is an institution as old as Alfred, but we of course do not wish to say that the word itself is quite as old as that. It is enough for our purpose to point it out in the political songs of the reign of Edward II., speaking of prelates who

"Be in office with the king and gather treasure in a hepe,
And the *franchise* of holi church e hii laten
ligge slepe,
ful stille." *

Occasionally, too, the Archbishop's logic is at fault. In his fourth lecture on the English language he is treating of the recovery of words which, after falling into disuse, are now well known again. To augment the number of these he quotes lists, such as the one annexed to Spenser's Shepherd's Calendar, in which many old words are explained for the benefit of the reader, such as "askance, bevy, flowret," etc., which would need no such glossary now. But in the same breath he quotes other lists which do not purport to be explanations of old words, but of old and *obscure* words, and of words "*not familiar* to the vulgar reader," which evidently embrace entirely different classes of words from those of which he is treating. A newly introduced word may be so obscure or unfamiliar as to need explanation when it first appears, but that is no reason why we, who now understand it, should call it a recovered word.

There are also instances of harshness in style which should have been removed before the work arrived at such a late edition. The expression "as in instances innumerable cases may be seen," jars upon our ears, and a very little trouble would put it right. The next example is, however, radically wrong and foreign in its construction. Speaking of some compound verbs, such as "to wit-wanton" or "to cankerfret," he says, "these words, tho' never in public use, seem to me *happier than that they should be allowed to die.*"† The close of the introductory lecture on the Study of Words is another example of "how not to" express a simple thought in simple language.

Still, in spite of these and of yet graver faults, the books are fascinating enough to make us regret having to put them down. There is a mystery and a charm about words that attracts us to follow, while all the time

we know that however searching our quest may be there is a limit to our discoveries, and that when we fancy we have traced back a word to its beginning, and see upon it the delicate bloom of a freshly expressed thought, we must expect to find a yawning abyss of years open before us, and to learn that our new word is, alas, but some battered fragment, floated to us from the wreck of a dead or dying tongue. Archbishop Trench naturally magnifies his subject. To him Hobbes was a "false prophet," especially when he said that words were wise men's counters and the coins of fools. The same thought had occurred to Montaigne, when in speaking of wordy and pedantic learning, he says, it is passed from hand to hand "only to make a show in conversation . . . like those glittering counters, which are of no other use or service but to play or count a game with."* It seems hard to believe that our author was incapable of appreciating the wholesome truth embodied in this saying of Hobbes, or that he could not see that the blame was attached to the fool who so misused the word, and not to the word itself. In the abstract, and as viewed by the philologist, a word is the same wherever it occurs, but the Archbishop would be the last to say, as a man, that as much weight is to be given to a word in a scurrilous tale as to the same word in an impassioned soliloquy by Shakespeare.

It is very curious to notice the blindness that hinders critics from distinguishing among a crowd of new candidates for admission into our vocabulary, those few favoured individuals which will eventually succeed. A good example occurs at page sixty-five of "English, Past and Present," where a list of glaring Americanisms are given in a note, and the author overwhelms them all with one common disdain. We agree cordially with his abhorrence of "eventuate," "happify,"

* Montaigne's Essays. On Pedantry, vol. 1, p. 149. 9th edition, 1811.

On the same point cf., "The Two Gentlemen of Verona;" Act 2, s. 4:

Thurio. Sir, if you spend word for word with me, I shall make your wit bankrupt.

Valentine. I know it well, sir, you have an exchequer of words, and I fancy no other treasure.

* Camden Society's Political Songs, p. 325.

† English, Past and Present, p. 221.

and "to resurrect," but what are we to say when we find among the list that most happy expression "to belittle," and that indispensable term "shortage"?

On several occasions the Archbishop shows signs of professional prejudice. He falls foul of the Renaissance as a return from Christian to Pagan Art. Although he has Mr. Ruskin for an ally in this, we must enter our protest against his canon of criticism. Art is a world by itself, Christianity, Paganism, are accidents to it, and are not in any way essential to its well-being. It exists in a different sphere altogether from religion, and its re-birth is happily so termed from the fact that under the leading of the great Italian master-minds the recently discovered Greek statues, and the human form itself, then first became the models of excellence and the exemplars of study instead of the angular impossibilities of the early Christian Schools of Sculpture. Naturally enough, Modern Science also comes in for a rap over the knuckles. Sometimes (as at page fifty-one of English, Past and Present) Darwinism is dismissed with a phrase, barely covering the sneer that is too plainly intended. We are told that, in the case of words at least, the rule as to the "survival of the fittest" does not always obtain. An interesting lecture might be written on this text, showing how persistently a wrong meaning is forced upon a scientific theory, on account of the want of precision in the catch-word by which that hypothesis is generally known to the vulgar. Every orthodox opposer of the doctrine of development is prepared to prove that throughout the realm of nature, whether we look at men, emotions, morals, or words, the absolutely fittest does *not* survive, but on the contrary a lower type often supplants the higher. This achieved, there is a flourish of trumpets over the defeated hypothesis. It is however a hollow triumph, a triumph of words and not of facts. The position which was intended to be assailed remains intact, for it does not rest upon the survival of the absolutely fittest, but of the form which is fittest in relation to its surrounding circumstances. It is abundantly plain that in many

cases the lower type of man or of word will be best fitted to survive and will survive accordingly. Given a convict settlement, with Shakespeare and the slang dictionary for its sole literary pabulum, and one can prophesy very easily whether the poet's or the pick-pockets' phrases will have succumbed in the struggle for existence after a few years; and which parts of the dramatist will have contributed a few words to the rogue's vocabulary. Hamlet's language may be the noblest and fittest for men and angels, but a few low words out of Pericles, or a curse or two from the lips of Caliban, will have approved themselves as fittest for a community very far removed from being angels or even men.

It will be readily understood then, that Trench dismisses the "urang-utang" theory of man's development as incapable of satisfactorily explaining the growth of language. It could hardly have been expected that he would have done otherwise, but none the less may we venture to predict that no complete hypothesis will ever be framed that will explain everything so thoroughly as that which supposes the slow and natural growth of man's body, mind, moral qualities, emotions and language from a creature, low it may be in its actual attainments and functions, but mysteriously great in its God-given capacities for improvement and progress.

THE TEACHER. By J. R. Blakiston, M.A., one of Her Majesty's Inspectors of Schools. Macmillan & Co., London.

PRACTICAL HAND-BOOK OF SCHOOL MANAGEMENT AND TEACHING. By F. E. Harding, M. C. P. Thomas Laurie, Edinburgh.

HUGHES' HAND-BOOK OF EXAMINATION QUESTIONS in Arithmetic, Geography, Grammar and Analysis. Hughes & Co., London.

It is not necessary for Mr. Blakiston to inform us, as he does in his preface, that his manual is the result of twenty-five years' experience in educational work; every page attests extended practical acquaintance with the work carried on in elementary schools by an active, searching, and unbiassed mind,

accustomed to look for something good in whatever comes before it.

"The Teacher" is divided into three parts:—Part I. is devoted to Tone and Discipline, and to Class Management; Part II. to Infant Schools; and Part III. to Boys', Girls' and mixed Schools. Two appendices are added which will prove useful to the young teacher, as they contain outlines and notes of lessons given by experienced Masters and Mistresses on the various subjects of School-work.

Parts I. and II. are the most valuable, in the book, and the remarks of the author on tone and discipline are full of good sense. While admitting, for instance, that there are born disciplinarians as well as born teachers, he maintains that much may be done by persistent effort on the part of the most unskilful teacher to secure excellence in school management, and he supports his assertions by the following remarks:—

"The least gifted may take heart when he bethinks him that success in school management depends mainly on watchful and unremitting attention to little details, and on conscientiously grappling with every difficulty as it arises. . . . If a teacher at all times keeps a high aim steadily before him, and struggles incessantly to attain it in spite of repeated failures, his very mistakes carefully noted and thoughtfully corrected, will lead to gradual improvement and ultimate excellence. He should ever be on the look-out for better methods, apter illustrations, more vivid ways of putting things, however homely and familiar to himself. A lifetime is not too long to attain perfection in his art."

He gives advice that only a man of long experience in school work might be expected to give on the way to deal with troublesome parents, strongly recommending forbearance, and the "soft answer." In connection with this subject he wisely cautions teachers to beware of turning to a child's disadvantage in school anything he may have learnt by a visit to his home. Mr. Blakiston is evidently not disposed to coincide with those teachers who think they should exemplify in their own persons that

useful fiction of our political constitution, "The king can do no wrong;" for he plainly advises them to confess their ignorance when questioned by their scholars on any subject with which they are not acquainted; and to make amends for any injustice or unkindness they may, through irritability or infirmity of temper, have been guilty of towards them. This course of action cannot be too highly commended on the part of those who have the training of the young; children should be taught by example, as well as by precept, to shun intellectual arrogance; and to show a proper regard for the feelings and rights of all with whom they come in contact.

Coming to methods of teaching, our author has no word of praise for the old style of teaching reading, by uttering the names of the letters and not their powers; he strongly supports the phonic system which has begun to show good results amongst ourselves, and as an encouragement to those who may not have tried it, he says:—"Teachers previously accustomed to teach reading alphabetically must not allow themselves to become disheartened by the seemingly slow progress made by children during the first few months. Their steady progress afterwards, and the confidence with which they will soon grapple with words will more than repay patient waiting." Then follow some excellent remarks on the way to teach spelling.

His recommendation of simultaneous reading when children are beginning a new lesson is of questionable utility, as are some others that he makes on teaching the ordinary subjects to advanced scholars, but any defects of his own are amply made up for by the admirable notes of experienced teachers in the appendices. One of the points to which Mr. Blakiston gives frequent prominence is the necessity for the teacher to thoroughly prepare himself for every lesson he has to give; and in doing this to make notes of subjects with which he is not perfectly familiar by consulting other authorities than the school textbook before he brings them before the class.

It is interesting to know what a man of our author's range of thought and experience deems necessary for children of our element-

ary schools—beyond the ordinary school subjects. On pages 60 and 61, he says:—

“A girl leaving school at the age of twelve should be a good needle-woman, able to mark, mend, and make her own and her brother's underclothing. She should know the uses and prices of common clothing materials, and the most economical way of cooking simple food. Boys should have special instruction in elementary physics, so as to understand something of the forces with which they have to deal. The teaching should be such as will tend to implant in them a sense of their ignorance, and a desire to learn more as they grow older. Thus the action of syphons, pumps, screws, inclined planes, levers, wedges, wheels, axles, and pulleys; dew, rain, hail, frost, clouds, ice, snow, winds, thunder-storms, are all subjects of which a good teacher will be anxious to let his boys know something definite, before they leave school for work. . . . Systematic instruction should be given to both sexes on the laws of health, and on such parts of animal physiology as are needed for an intelligent knowledge of those laws. They should be taught the proper treatment of common accidents, burns, scalds, clothes taking fire, cuts, bruises, and drowning.”

We have said enough to show that this book has a good deal that is fresh and well worth knowing, on what is regarded as a thread-bare subject. We can heartily commend it to the attention of our young teachers, feeling sure that a studious perusal of it will aid them in shaping their ideas in right courses, and their conduct in safe paths, over difficult ground.

The next work under review is in marked contrast to the one we have just dealt with. Mr. Harding, M. C. P., evidently knows little about himself, or he would never have committed his crude notions on *School Management* to print. Mr. Blakiston's book is the work of one whose knowledge of his subject is sufficiently extensive to make him, as he declares in his preface, “feel more and more every year how much he has yet to learn;” while Mr. Harding's is the work of one who, like the unskilful sculptor referred to by himself, proceeds to use mallet and chisel upon a stone whose nature he has not carefully studied. We find, for instance, that his idea of school management does not rise higher than that of regu-

lating everything by the rod. There is little to be learned from the methods he recommends in teaching the various subjects, if we except spelling, and perhaps geography; and there is much to find fault with. Take for instance, what he says about teaching subtraction.

“The system of borrowing and repaying, continually carried on in these terms, should be carefully and clearly explained to the children, making them see that though we borrow 10, and apparently pay to the next figure only 1, we really pay 10; for the 1 we carry being added to a figure ten times as valuable as that for which the 10 was borrowed, counts not as 1, but as ten times 1, which is 10, and so the repayment is just.” It does not seem to have entered the head of this “Member of the College of Preceptors,” that the method of subtraction he describes and tries to explain consists in a continual adding and not in a borrowing at all. Equally crude are some of the remarks he makes on the teaching of writing and grammar. We can best mark our estimation of the book by saying that the most interesting part to the Canadian teacher is the Appendix, which contains the standards of Examination in the subjects taught in English and Scotch elementary schools, and also those for the examination of pupil teachers.

Mr. Hughes' *Handbook* is one we can strongly commend to the attention of teachers of our Public Schools. It contains an extensive assortment of questions in four of the most important subjects of their work. Many of these are selected from those put by Inspectors in Britain, when visiting schools, to test the knowledge of the classes they examined. The questions are graded so as to suit the various classes, from the first book up to the fourth or fifth. Answers are supplied to the Arithmetic questions. Amongst the easy problems for young thinkers will be found a large number that will serve as admirable exercises in Mental Arithmetic. To teachers of ungraded schools, who have such a variety of work to attend to, this book will be particularly valuable.

EDITORIAL NOTES.

TOPICS OF THE TIME.

The future of the English language is, at the present time, a matter of anxious concern to those who regard with uneasiness the persistent efforts of sciolists and tinkers to remould the mother tongue on the principle of phonetic spelling. The agitation for the so-called "Spelling Reform" is one which we trust will be sternly resisted in Canada, as, however rational some of the proposals may be, to remove from the language some of its more glaring inconsistencies, the scheme as a whole is a wild dream of unwise, half-educated men, who would, for a craze, mongrelize our whole literature beyond recognition. It is very desirable, no doubt, that we should have consistency and uniformity in orthography, and to this end we would go some length in meeting the reformers of the language, but their designs extend much further than this, and would treat words as visible objects to be shaped in their spelling after their own orthoepic notions, regardless of their history and derivation. In the forms of those letters which imperfectly represent our vowel sounds, we should be prepared to entertain proposals to alter them, or to extend their number. So in regard to other matters, in which a change or an improvement would be serviceable, we would not object to innovation. But to revolutionize the language, and to desecrate our literature, by recasting its whole structure in the melting pot of visible and audible uniformity, as so many American theorists on the subject would do, is a project which should be utterly scouted and receive the discouragement it deserves.

WE have little to add to our remarks of last month upon the new School Bill, which, in a considerably amended shape, became

law as the session was about to come to a close. Immature as were many of the clauses of the Bill, and uncalled for as were almost all of its provisions, it is to be regretted that the House was not prorogued before it had a chance of being placed upon the Statute Book of the Province. We do not doubt Mr. Crooks's good intent in introducing the measure, but there is much in its provisions to warrant the belief that the interests of the schools were not wholly the motive which gave to us new legislation on the subject. A few more such sacrifices to political and sectarian intrigue, as education has just been called upon to make, will not be long, however, in testing the permanence of the office of Minister of Education. Governments that lend themselves to such legislation not unnaturally, also, imperil their existence.

WHAT is the matter with our contemporary "The School Journal?" In the last two numbers it has taken a new departure, and "gone back on" its loyal adherence to the Education Department from which, in its nursing days, it received that aliment which substantially aided it in finding its feet. This is ungrateful. But it has taken a more serious departure in the tone and style of its editorials, which we cannot say are an improvement on the crude efforts in composition which have hitherto been the noticeable feature of the *Journal*. Under the evident inspiration of some American contemporary, 'out west,' it has exchanged its former sober and timid style of writing for the flippant and the critical; and with a rough malice and a vulgar sneer assumes a defiant attitude towards the Minister of Education and the Department, which it ill becomes its conductors or its publishers to affect. The editor of the *Journal*, in his monthly lucubrations, mani-

feats an English style of his own, which it would be sheer presumption in us to criticise. This, time will perhaps either amend or considerably attune our ear to; but it would be well, while grammarians generally agree upon what is the correct English of a simple sentence, that the *Journal* should not set before the teachers of the country any very gross instances of its violation. On the question of style, we might, at the same time, suggest what must be patent to everyone but the conductors of the *Journal*, that educational topics demand a dignity of treatment which in the April number of the publication, at any rate, they cannot be said to have received. We refrain from comment on the questionable taste of the *Journal's* splenetic detraction of the Minister who, like its Editor, is a public servant, and more than this, the official chief of the Central Committee, of which the editor is a member. Mr. Crooks has personal claims, aside from his official position, to be considered a gentleman, and to be spoken of and treated as such, and it might be worth while if the conductors of the *Journal*, ere they issue another number, would reflect upon this fact.

AN English Journal recently made this facetious remark, that, "Ages hence learned Archæologists may authoritatively declare that the great Needle was erected in England to mark the period when women abandoned the art of sewing, and began the competition with men which will then have resulted in feminine supremacy." If our contemporary, in his delicate rebuke of our wives and sisters, had extended the point of his satire, by some reference to the centuries of baking the needle had undergone in the hot sands of Egypt, and had included the abandonment of the art of cooking on the part of the sisterhood, he would have added a graver charge to his indictment of the sex. But the English public have less to charge themselves with in these respects than we in Canada, for not only is Domestic Economy—including needle work and cooking—both theoretically and practically taught in the Art Schools of Kensington, but over the country much at-

tention is devoted to these important branches in thousands of the public schools. With us, however, the pressing claims of these necessary branches of education have never been practically recognized as subjects of school instruction—public opinion, seemingly, never having been sufficiently influential to secure their being taught. So apathetic, indeed, is the public mind on the subject, that in regard to Domestic Economy, the Minister of Education publicly admitted the other day that some recent efforts he had made to have it included as a branch of study for women at the Toronto Normal School, had resulted in failure. Now without repressing the sex's laudable pursuit of the 'Higher Education of Women,' we venture to declare that their abandonment of the kitchen and their unwillingness to familiarize themselves with even the rudiments of the culinary art, is an untoward misfortune, not only to the sterner sex, but to themselves, and to the households of which they form a bright and graceful part. It may be, however,—happy thought!—that Mr. Crooks's experiment was resented because our young women knew already as much of cooking and of household duties as they were likely to learn at the Normal School—and the high reputation Canadian women enjoy as proficients alike in the kitchen and the drawing-room, may be safely taken as indicative of this—but a comprehensive theoretical and practical course of Domestic Economy, it will be admitted, includes much that, if properly taught, would be an important acquisition to the sex, and we hope larger views on the subject will yet prevail, and that schools of cookery will ere long become—if we must use the word—"fashionable" in Canada.

BRIEFS ON NEW BOOKS.

Goldsmith's Traveller and Gray's Elegy; by William Williams, B.A., and John Tait, Collingwood Collegiate Institute. Toronto: James Campbell & Son. Messrs. Williams and Tait have put together with considerable care the necessary material for the use of students preparing for an examination in these two classical works. It is, of course,

hard to be very original in travelling over such well beaten literary paths, but the editors have shown sufficient evidence of pains-taking to entitle us to expect more ambitious things from them in future. We would especially single out for praise the chronological table given at page fourteen, which shows at once the relation between the events of the lives of the two poets and the other leading incidents of their age. We must also have a word of praise for the neatness with which the little book is printed and bound. There are some points as to which the editors must allow us to differ from them, though even in these cases their mode of expression is perhaps more to blame than anything else. For instance they can hardly mean that an increased regularity in the number of syllables in a line is a *desideratum* in poetry. The highest poetry uses to the full those irregularities of verse construction which we find in the later plays of Shakespeare as opposed to the more monotonously regular flow of his earlier efforts.

Milton's Paradise Lost. Storr's Notes. Toronto: James Campbell & Son. Mr. Storr's notes to the first two books of the

great poem are perhaps hardly so exhaustive as those given in the similar work by Mr. Seath, lately reviewed by us. Except for this and for the fact that the text itself is not interleaved, we should think a student would feel some difficulty in knowing which of the two editions to choose to work upon.

Julius Caesar, edited by J. M. D. Meiklejohn. London and Edinburgh: W. & R. Chambers. This is a capital little book; the text carefully revised, the notes (in most instances at least) well meant and unobtrusive. We would particularly praise the typographical arrangement of these notes, the fount used being peculiarly adapted to catch the eye. Mr. Meiklejohn is, as might be expected, liable to occasional attacks of the commentator's rage to explain what needs no explanation. Thus he comments upon Act I., scene 2, line eleven: "and leave no ceremony out," as follows "out—unperformed." Surely to "leave out" anything is an ordinary, every-day expression enough, and the elucidation itself might as well have been "left out," or as the editor would doubtless say, might have been left "unperformed."

THE EDITOR has had the accompanying note courteously sent to him, by the Deputy Minister of Education, with reference to the Midsummer Convention of the "American National Association of Teachers." The invitation is a very cordial one, and with Dr. Hodgins, the Editor would gladly see it heartily responded to by the Canadian Profession, feeling sure that the contact with their brethren over Educational matters will prove profitable and interesting:—

Toronto, April 10.

MY DEAR SIR,—

I have received the following note from the President of the American National Association:

"We are making such preparations for the

meeting of our Association at Philadelphia, July 29—31, inclusive, as we think will insure a great meeting.

"We should be glad to have you and other Canadian Educators come over and meet with us. I am sure United States Educators, and people of Philadelphia, will extend a most hearty welcome to such as may be prevailed on to cross the border."

I trust that our County Teachers' Associations will be able to depute some of their leading members to join in this gathering. Those which I have hitherto attended have been most interesting and instructive.

Believe me,

Very sincerely yours,

J. GEORGE HODGINS.

OFFICIAL NOTICES OF THE DEPARTMENT OF EDUCATION.

[The following "General Circular" issued by the Department has, we learn, been distributed among School Trustees, and members of School Boards. In the interest of the profession, however, we have thought it important to give place to it in these columns, where reference may be more handily made to it.—ED.]

GENERAL CIRCULAR.

The Amendments in the School Law during the Session just closed, make it necessary that Municipal Corporations and officials, School Corporations and officials, and the public generally should be informed of their nature and effect; and I propose to do this in the like order as in the Revised Statutes.

I.—AMENDMENTS IN THE LAW.

1. It is now the duty of the Minister to apportion annually, on or before the first of May in each year, the Legislative Grant in aid of Public and Separate Schools according to the returns for the last preceding year of the whole population of Ontario, which the Clerks of the respective Counties, Cities and Towns separated are now required to furnish to the Minister on or before the first day of April in each year. This duty is, therefore, to be performed immediately by the several Clerks, using as the basis of their returns for the population of each County, City or Town separated the Assessment Rolls for the last year.

2. School Corporations purchasing authorized prize or library books, maps or apparatus from booksellers or others, are entitled to an equal amount from the Depository stock or in cash, as they may desire. Normal School students can obtain from the Depository, at cost price, text and library books, maps and apparatus—Teachers' Associations, works on education, and Public Institutions receiving Provincial aid, library, prize and text books, maps and apparatus.

3. The Franchise in the case of all Public Schools has been extended so as to include income voters who have paid a school tax,

while all formerly qualified continue to be so.

4. The mode of electing the Trustees of School Boards in Cities, Towns, Villages and Townships, has been clearly provided for, as will be seen from the Act itself; while in the case of Rural School Sections the old mode has not been changed except as to the day of the Annual Meeting, which will in future be on the last Wednesday in December in each year, or if a holiday on the day following.

5. The duties of Municipal Councils in organized Townships apply to every organized Township in the Province; but with respect to unorganized Townships and Municipalities composed of more than one Township, but without County organization, the law is now clear, owing to the amendment in section 10 of the new Act, which provides that the Municipal Councils in such case can form portions of the Townships into School Sections or a School Board as they see fit.

6. It is important to know that the powers of Trustees of rural school sections to levy or collect upon their own authority public school rates has ceased, excepting as to pending proceedings, which may be prosecuted until the rates are collected; and henceforth the machinery for the collection of all school rates as well as other rates is the same, the basis for the requisition of the School Trustees being the Assessment Roll, and the collections being through the Municipal Collector and other Municipal officials.

7. Any surplus school money (not derived from the Municipalities' Fund, or the Municipal Loan Fund surplus) may be apportioned amongst school sections according to the

average attendance of the pupils at each school.

8. The amount payable from the County Rate for Teachers' salaries can either be paid by the County Treasurer under the direction of the County Inspector to any Teacher direct, or transmitted to the respective sub-Treasurers.

9. It is made clear that all pupils, children of non-residents, are liable to pay a school fee, not exceeding twenty-five cents for each month.

10. In arbitrations for taking school sites all interests, including those of Owners, Mortgagees, Tenants and others, can be dealt with.

11. As to Union School Sections the following doubtful points are settled :—

(1.) The union is considered for inspection, taxation, borrowing of money and all school purposes, as within the Municipality in which the school house is situate.

(2.) Part of the portion of the Municipality forming the union may be withdrawn, but any proceeding of this nature is always, as well as the whole portion, in the discretion of the Municipal Council.

(3.) On the first day of January next, the provisions as to a union formed after the second day of March, 1877, will apply to all unions formed before that date, and as to the latter, the period of five years runs from the time they were first established.

12. The Public School Board of any City is empowered to constitute one or more of the Public Schools in such City a Model School for the preliminary training of Public School Teachers subject to the Regulations of the Department.

13. As to Separate Schools, in order to improve their efficiency, while recognizing the principles on which they can be established, the following has been enacted :—

(1.) Elections of Trustees in Cities, Towns, and Villages are to be held, as provided in the case of Public School Boards, and in Townships, as in Rural School Sections.

(2.) Trustees can borrow on the security of the School premises or rates, repayable with interest, by instalments or otherwise.

(3.) A non-resident owner of unoccupied land can, if a Separate School supporter, re-

quire the School rates thereon to be paid to the Separate School, if any, in such Municipality.

(4.) Any Separate School rates charged upon real estate and uncollected at the end of any one year can, as in the like cases of Public School rates, be advanced by the Township.

(5.) So much of the General County rate for salaries of Public School Teachers which may be levied from Separate School supporters is to be paid over to the Separate School Trustees, if any, in the Township.

(6.) In cases where the Trustees of R. C. Separate Schools exercise their option of having the Separate School rates collected by the Municipal machinery, the Assessor can accept the knowledge of a person being a Roman Catholic as *prima facie* evidence of his being a Separate School supporter.

(7.) The Education Department can authorize a Separate School to become a Model School for the preliminary training of Teachers for Separate Schools; and in such case, or in the special circumstances of Separate Schools in any County, the Minister may recommend to the Lieutenant-Governor in Council, the appointment of an additional member of the County Board of Examiners possessing qualifications prescribed by the Education Department.

(8.) The thirtieth section of the Separate School Act is now defined to comprise Teachers qualified either in the Province of Ontario, or at the time of the passing of the British North America Act in the Province of Quebec.

14. The powers of Public and High School Boards in requiring Municipal Corporations to raise upon the requisition of such Board any sum which they might demand, has been circumscribed as to expenditure on capital account to the extent following, viz :

(1.) The Municipal Council may, by a two-thirds vote, refuse to raise the amount demanded.

(2.) In case of refusal the School Board may require the question to be submitted to the Municipal electors qualified to vote on By-laws for creating debts, and on the assent of a majority of the electors being obtained the Municipal Council must pass the By-law.

15. In the case of Rural School Sections, Trustees cannot borrow or raise any money for expenditure on capital account unless the proposition has been first approved of at a general meeting of the qualified school electors.

16. The above provisions do not apply to cases where School Boards have, before the passing of this Act (the 11th March, 1879), resolved upon or entered upon any such expenditure under their former powers.

17. Debentures for the loan of money for School purposes may be for a term not exceeding twenty years; and may be repayable by instalments of principal, as provided by the Municipal Act.

18. The Board of Examiners for the admission of pupils to the High School is now confined to the Public School Inspector and the Head Master of the High School, the expenses being equally borne by both School Boards, after deducting any fees therefor to be prescribed by the Regulations of the Department under which candidates, being non-residents of the County (or City or Town separated), will be required to pay a moderate fee; as also unsuccessful candidates.

19. As to High Schools, the thirtieth section has been made more clear, so as to carry out what was intended. The Board of Education, while one corporation, is yet to act in Public School matters and High School matters respectively, as if invested with all the powers of Public and High School Boards respectively.

20. In case of a tie in any quorum of a Public, Separate or High School Board on any question, the Chairman has an additional vote to his own.

II.—QUESTIONS UNDER THE REGULATIONS.

I take advantage of this opportunity to express the proper effect of the Regulations on some questions of general interest.

1. The Regulations generally are to be understood as being a standard or model, to be reached as far as may be, having reference to the varying resources and different circumstances of each particular school as compared with another. In their application to any given case Inspectors and Trustees are to exercise a wise and prudent discretion, and upon this mainly depends their beneficial and useful operation.

2. Inspectors will understand that they have no power to withhold the Legislative

grant from any School Corporation, but should report the facts to the Minister, in cases where it is considered there has been wilful omission or neglect. It is to be specially noticed that the hints for the guidance of Teachers as to the programme or course of study should govern them; and that it is for the Trustees and Teacher to impose any time or limit table for use in the School.

3. As to School accommodation, Inspectors should consider the Regulations as recommendatory; and that the circumstances of each section must be regarded, in order that its resources may not be unduly affected.

4. Inspectors are requested to be careful in exercising any authority to set aside any election or proceeding at a school meeting, or to summon one on their own motion, and should proceed only upon formal reasons in writing. While the law and regulations are explicit as to their duties, they should endeavour always to act impartially, and thus justify the continued confidence of the County Councils who appoint them, and of the Education Department.

5. Inspectors should carefully consider the grounds on which they may recommend to the Minister the granting of a temporary Certificate or of any extension of Third-class Certificates.

6. The constant attempts to evade the law in introducing unauthorized Text Books is an evil which demands the immediate and personal attention of every Public School Inspector.

7. The functions of County Boards of Examiners, since August, 1877, are confined solely to the granting of Third-class Certificates or their renewal upon re-examination, or their withdrawal or suspension.

8. The duties of the County Board first begin when the answers are placed before them by the presiding Inspector. He alone or with an approved substitute conducts the examination itself, and as there will now be only one Intermediate Examination in each year there need be no misapprehension as to this in the future.

9. As to authorized Text Books, the Reg-

ulations of July, 1877, expressly prohibit Teachers from substituting for any of the old Text Books any newly authorized one unless and until he has received the sanction of the Trustees and of the Public School Inspector. All the old Text Books if in use in any school before the end of the year 1878, remain authorized in such school, and can only be changed by the Trustees and School Inspector jointly concurring.

10. The Regulations of July, 1877, were intended to meet the urgent and general demands for a revision of the Text Books, and to carry out the work which the Council of Public Instruction had begun. It was not the policy or intention of the Minister to go further, or to recommend any new Text Books on any subject except where the Council of Public Instruction had proposed this, or it was clear there existed a special want; yet, notwithstanding knowledge of this by publishers and others, persistent efforts have been and are constantly made to induce Inspectors, Teachers, and officials to recommend for purchase and use in the schools new works not only unauthorized but as to which no publisher could have had any reasonable expectation that any of them would be authorized. The law expressly prohibits any Teacher, Trustee, Inspector, or other person officially connected with the Education Department, Normal School, Model School, Public or High Schools, to

become or act as agent for any person, to sell or in any way to promote the sale of any School, Library, Prize or Text Books, Maps, Charts, School Apparatus, Furniture or Stationery for use in any School, or to receive any compensation or other remuneration for such sale or for the promotion thereof. In his endeavours to secure the observance of these provisions of the Law, the Minister hopes to obtain the co-operation of all School Corporations and officials, including Teachers generally.

11. As to County Model Schools—there is no Institution more important in its educational results, and while in all Counties of the Province, except two, this is fully appreciated, it is to be noticed that the Model School is for County purposes, and County Councils must rely on them for supplying their Counties with qualified Teachers. The Department has discharged its duty in affording these opportunities and the Legislature in providing a share of the expense. Nothing so economical or beneficial can be offered for the continued confidence and support of County Councils.

12. The subject of Text Books in the High Schools require the same observations as have been made in the case of Public Schools.

ADAM CROOKS,
Minister of Education.

Education Department (Ont.),
Toronto, March 14th, 1879.

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

MAY—JUNE, 1879.

UNCONSCIOUS TUITION.*

BY unconscious tuition I mean that part of a teacher's work which he does when he seems not to be doing anything at his work at all. It has appeared to me that some of the most nutritive and effective functions of an instructor are really performed while he seems least to be instructing. To apprehend these fugitive and subtle forces, playing through the business of education with such fine energy, and if possible to bring them within the range of a practical dealing and discipline, is the scope of my present design.

The central thought of my doctrine assumes that the ultimate or total object of the teacher's profession is not the communication of knowledge; or even, according to the favourite modern formula, the stimulating of the *knowing faculty*, if by the knowing faculty we understand a faculty quite distinguished and separate from the believing faculty, the sensibility, and the will. It has been generally admitted, for a long time, that education does not consist in inserting facts in

the pupils' memory, like specimens in a cabinet, or freight stowed in the hold of a ship. But not only must we dismiss those mechanical resemblances which liken the mind to a storehouse, a museum, or a library; we must also carry our conception of learning above the notion of an agile and adroit brain. Education does not consist in provoking bare intellectual dexterity any more than in presenting ascertained truth to the intellectual perceptions; or in both together. Education involves appeals to faith, to feeling, to volition.

In a word, education is not the training of the mind, but the training of the man. Being the discipline of an organized subject, it is organic in its own nature. No analytical classification can partition off the elements of humanity like the ingredients of a soil. Even of a tree we cannot rear a single branch independently of the other, unless we kill the others back by violence. One-sidedness has been the vice of all systems of education hitherto, and every legitimate advance

* Abridged from a Lecture by the Right Rev. F. D. Huntington, Bishop of Central New York.

has been an approach to the recognition of the unity and indivisibility of the educated being as a living and infinite soul.

Let us proceed, on the ground of this principle, with our proper theme. My main propositions are these three: 1st. That there is an educating power issuing from the teacher, not by voice or by immediate design, but silent and involuntary, as indispensable to his true function as any element in it. 2nd. That this unconscious tuition is yet no product of caprice, or of accident, but takes its quality from the undermost substance of the teacher's character. And 3rd. That as it is an emanation flowing from the very spirit of his own life, so it is also an influence acting insensibly to form the life of the scholar.

I. I remind the teacher of a fact which I presume may have been some time disclosed to him, in his dealings with almost any truth in its more secret relations, viz., that all true wisdom involves a certain something that is inexpressible. After all you have said about it, you feel that there is something more which you never can say, and there is a frequent sensation of pain at the inadequacy of language to shape and convey—perhaps also the inadequacy of the conceptions to define—that secret and nameless thought which is the delicious charm and crown of the subject, as it hangs, in robes of glory, before your mind. Any cultivated person, who has never been oppressed by this experience, must be subject, I should say, to dogmatism, pragmatism, conceit, or some other belittling infirmity. Where the nature is rich and the emotions are generous, there will always be a reverential perception that ideas only partly condescend to be embodied in words.

I am not pretending that in the ordinary processes of juvenile instruction one often arrives at any such im-

pressive expansion of thought, or any such intensity of feeling. Of course a class in spelling, a recitation in arithmetic, the grammatical corrections in an exercise in composition, the daily discipline of three-score boys and girls, will seldom raise those vast and reverential sentiments. My purpose here is simply to show that some of the deepest and most powerful impressions are made on our minds, independently of any spoken or written words, by influences, by signs, by associations, beyond any speech. And this point lies close to my argument. You know the remark they used to make about Lord Chatham: 'that everybody felt that there was something finer in the man than anything he ever said.' We are taught, and we teach, by something about us that never goes into language at all. I believe that often this is the very highest kind of teaching, most charged with moral power, most apt to go down among the secret springs of conduct, most effectual for vital issues, for the very reason that it is spiritual in its character, noiseless in its pretensions, and constant in its operation.

Besides, I do undertake to say, only by the way, that in the teacher's profession, as in every other, we are not to judge of the possibilities or the limitations of the calling by its common aspects or its everyday repetition of task-work. I protest against the superficial and insulting opinion that in the education of children there is no room for the loftiest intellectual enterprise, and no contact with divine and inexpressible wonders. Any teacher that so judges his vocation by its details belittles it. The school-room, no less than the laboratory, the studio, or the church itself, opens upward into God's boundless heaven. Each of the sciences has moral relations, and terminates in spiritual mystery. And when you

awaken a feeling of that great truth in your pupil by the veneration, the earnestness and the magnetic devotion of your own mind, you have done him a service no less essential to the completeness of his education than when you have informed his understanding of certain scientific facts. Arithmetic, for instance, ascends into astronomy, and there you are introduced to laws of quantity which make the universe their diagram, to the intellectual magnitudes of La Place and Newton, to the unsearchable empire of that religion which feels after the God of Arc-turus and the Pleiades. The rules of grammar are only intelligible formularies that lie on the outmost boundary of an inexhaustible study. And the government of your pupils, what is it but the faint and erring endeavour to transfer into that little kingdom you administer the justice and the love which are the everlasting attributes of the Almighty himself, applying them even here to immortal souls? Let us not wrong the dignity of such an employment by denying its connection with things unspeakable.

I return, however, to the direct path of my subject. And while I maintain that the scholar ought by all means to learn, from the sympathies of the teacher's spirit, that every study he follows is intertwined with moral obligations, and is related to a divine source, in ways which no text-book does or can lay down, I proceed to more specific statements. It is not in respect to particular branches of instruction, but in respect to what we may call *the moral power of the teacher's own person*, as something indeed in which the right action and the best success of *all* kinds of instruction are bound up, that I affirm the necessity of this unspoken and unconscious influence.

If we enter successively a number of school-rooms, we shall probably discover a contrast something like

this. In one we shall see a presiding presence which it will puzzle us at first sight to analyze or to explain. Looking at the master's movements—I use the masculine term only for convenience—the first quality that strikes us is the absence of all effort. Everything seems to be done with an ease which gives an impression of spontaneous and natural energy; for, after all, it *is* energy. The repose is totally unlike indolence. The ease of manner has no shuffling and no lounging in it. There is all the vitality and vigour of inward determination. The dignity is at the farthest possible remove from indifference or carelessness. It is told of Hercules, god of real force, that “whether he stood, or walked, or sat, or whatever thing he did, he conquered.” This teacher accomplishes his ends with singular precision. He speaks less than is common, and with less pretension when he does speak; yet his idea is conveyed and caught, and his will is promptly done. When he arrives, order begins. When he addresses an individual or a class, attention comes, and not as if it were extorted by fear, or even paid by conscience as a duty, but cordially. Nobody seems to be looking at him particularly, yet he is felt to be there, through the whole place. He does not seem to be attempting anything, elaborately, with anybody, yet the business is done, and done remarkably well. The three-fold office of school-keeping, even according to the popular standard, is achieved without friction and without failure. Authority is secured, intellectual activity is stimulated, knowledge is got with a hearty zeal.

Over against this style of teacher we find another. He is the incarnation of painful and laborious striving. He is a conscious perturbation; a principled paroxysm; an embodied flutter; an honest human hurly-burly. In his present intention he is just as

sincere as the other. Indeed he tries so hard that, by one of the common perversions of human nature, his pupils appear to have made up their minds to see to it that he shall try harder yet, and not succeed after all. So he talks much, and the multiplication of words only hinders the multiplication of integers and fractions, enfeebles his government, and beclouds the recitation. His expostulations roll over the boys' consciences like obliquely-shot bullets over the ice; and his gestures illustrate nothing but personal impotency and despair.

How shall we account for this contrast? Obviously there is some cause at work in each case other than the direct purpose, the conscious endeavour, the mental attainments, or the spoken sentiments. Ask the calm teacher—him who is the true *master*—master-workman, master of his place and business—ask him the secret of his strength, and he would be exceedingly perplexed to define it. Tell the feverish one that his restlessness is his weakness, and he will not be able to apply an immediate correction. What are we obliged to conclude, then, but that in each of these instances, there is going on an unconscious development of a certain internal character or quality of manhood which has been accumulating through previous habits, and which is now acting as a positive, formative and mighty force in making these boys and girls into the men and women they are to be? And it acts both on the intellectual nature and the moral; for it advances or dissipates their studies while it more powerfully affects the substance and tendencies of character.

Now there are different organs in our human structure which serve as media for expressing and carrying on this unspoken and unconscious influence, so that it shall represent exactly what we are. That is, to atone for

the defects of language, and moreover, to forestall any vicious attempts we might make at deception, the Creator has established certain signs of His own which shall reveal, in spite of our will, the moral secret.

One of these is the temper; or, rather, that system of nervous network by which temper telegraphs its inward changes to the outward world. The temper itself, in fact, is one of the ingredients in our composition most independent of immediate and voluntary control. Control over it is gained by the will only through long and patient discipline; and so it is an effectual revealer of our real stuff. It acts so suddenly, that deliberation has not time to dictate its behaviour; and, like other tell-tales, it is so much in a hurry that an afterthought fails to overtake the first message. It lets the hidden man out and pulls off his mask. This temper is doing its brisk publishing business in every school-house. No day suspends its infallible bulletins, issued through all manner of impulsive movements and decisions. Every pupil reads them, for there is no cheating those penetrating eyes.

Another instrument of this unconscious tuition is the human face. There is something very affecting in the simple and solemn earnestness with which children look into their elders' faces. They know by an instinct that they shall find there an unmistakable signal of what they have to expect. It is as if the Maker had set up that open dial of muscle and fibre, colour and form, eye and mouth, to mock all schemes of concealment, and decree a certain amount of mutual acquaintance between all persons, as the basis of confidence or suspicion. All the vital spirits of brain and blood are ever sending their swift demonstrations to that public indicator. It is the unguarded *rendezvous* of all the imponderable couriers of the heart.

It is the public playground of all the fairies or imps of passion. If you come before your pupils, after dinner, your countenance gross and stupid with animal excess, do you suppose the school will not instinctively feel the sensual oppression, and know Silenus by his looks? A teacher has only partially comprehended the familiar powers of his place who has left out the lessons of his own countenance. *There* is a perpetual picture which his pupils study as unconsciously as he exhibits it. His plans will miscarry if he expects a genial and nourishing session when he enters with a face blacker than the black-board. And very often he may fail entirely to account for a season of rapid and sympathetic progress, which was really due to the bright interpretations and conciliatory overtures glancing unconsciously from his eyes, or subtly interwoven in the lines of frankness and good-will about his lips. The eye itself alone, in its regal power and port, is the born prince of a school-room. He answers a score of questions, or anticipates them by a glance.

Another of these unconscious educatory forces is the voice; the most evanescent and fugitive of things, yet the most reliable as a revealer of moral secrets. The voice, I mean, now, not as an articulate medium of thought—that would be its *conscious* function, and that we here expressly set aside—but the voice as a simple sound, irrespective of syllables, and by its quality and volume, by tone, modulation, wave and cadence, disclosing a disposition in the heart. I have no doubt that the unexplained reason why some persons remain strangely repulsive to us, in spite of our resolute efforts to overcome the aversion, may be owing to some uncongenial quality betokened only in the tones of the voice. And it is familiar how the magic of a euphony,

made musical and gracious by pity and love, wins wonderful convictions. I remember hearing a thoughtful person, of fine moral intuitions, who had been a little tormented by the eccentricities of a man of genius, say that all his annoyances vanished before the marvellously affecting pathos with which this odd visitor spoke the single word *Good-night*.

Still another of the silent but formative agencies in education is that combination of physical signs and motions which we designate in the aggregate as *manners*. Some one has said, "A beautiful form is better than a beautiful face; but a beautiful behaviour is better than a beautiful form. It is the finest of fine arts. It abolishes all considerations of magnitude, and equals the majesty of the world." A treatise that should philosophically exhibit the relative proportion of text-books and mere manners, in their effects on the whole being of a pupil, would probably offer matter for surprise and for use. The young, quite as readily as the old, detect a sensible and kind and high-hearted nature, or its opposite, through this visible system of characters, but they draw their conclusion without knowing any such process, as unconsciously as the manner itself is worn.

Manners also react upon the mind that produces them, just as they themselves are reacted upon by the dress in which they appear. It used to be a saying among the old-school gentlemen and ladies, that a courtly bow could not be made without a handsome stocking and slipper. Then there is a connection more sacred still between the manners and the affections. They act magically on the springs of feeling. They teach us love and hate, indifference and zeal. A noble and attractive everyday bearing comes of goodness, of sincerity, of refinement. And these are bred in years, not moments. If lofty sen-

timents habitually make their home in the heart, they will beget not perhaps a factitious and finical drawing-room etiquette but the breeding of a genuine and more royal gentility, to which no simple, no young heart will refuse its homage. Children are not educated till they catch the charm that makes a gentleman or lady.

There is one kind of education, too, which has never yet perhaps had exact justice done it under any system, which must be carried forward by this indirect and pictorial method. I mean the imagination: that genial, benignant, Divinely-given faculty. By express tuition you can do almost nothing for it, and what you do you will be likely to do wrong. But unconscious forces within you will stimulate it. And how richly it rewards such nurture!

Just think of the dull, stupid scholars in every school; the poor brains that text-books torment; the sad, pitiable dunderheads, with capacity enough for action perhaps by-and-by, but dismally puzzled for the present by these mysteries of geography and fractions. What a jubilee to them is the day they find an animated and vital teacher, who teaches by all the looks and motions and heart-beats and spirit of him, as well as by those dreary problems and ghastly pages. There is no grade of intellect that this highest learning of the soul does not reach, and so it is a kind of impartial gospel, uplifting "glad tidings" to encourage despair itself.

II. It is time, then, to pronounce more distinctly a fixed connection between a teacher's unconscious tuition and the foregoing discipline of his life. What he is to impart, at least by this delicate and secret medium, he must be. "No admittance for shams" is stamped on that sanctuary's door. Nothing can come out that has not gone in. The measure of

real influence is the measure of genuine personal substance. How much patient toil, in obscurity, so much triumph in an emergency. The moral balance never lets us overdraw. If we expect our drafts to be honoured in a crisis, there must have been the deposits of a punctual life. To-day's simplest dealing with a raw or refractory pupil takes its insensible colouring from the moral climate you have all along been breathing. Each day recites a lesson for which all preceding days were a preparation. Our real rank is determined not by lucky answers or some brilliant impromptu, but by the uniform diligence. For the exhibition days of Providence there is no preconcerted colloquy—no hasty retrieving of a wasted term by a stealthy study on the eve of the examination.

It is in the experience of most teachers, I presume, that on certain days, from first to last, as if through some subtle and untraceable malignity in the air, the school-room seems to have fallen under the control of a hidden fiend of disorder. There is nothing apparent to account for this epidemic perversity. All the ordinary rules of the place are in full recognition. The exercises tramp on in the accustomed succession. The parties are arranged as usual. There are the pupils, coming from their several breakfasts, bringing both their identity and their individuality; no apostasy or special accession of depravity, over night, has revolutionized their natures; no conspiracy out of doors has banded them into a league of rebellion. Yet the demoniacal possession of irritability has somehow crept into the room and taken unconditional lease of the premises.

How is such a state of things to be met? Not by direct issue; not *point blanc*. You may tighten your discipline, but that will not bind the volatile essence of confusion. You may

ply the usual energies of your administration, but the resistance is abnormal. You may flog, but every blow uncovers the needle-points of fresh stings. You may protest and supplicate, scold and argue, inveigh and insist, the demon is not exorcised, or even hit, but is only distributed through fifty fretting and fidgeting forms. You will encounter the mischief successfully when you encounter it indirectly. What is wanted is not a stricter sovereignty but a new spirit. The enemy is not to be confronted but diverted. That audible rustle through the room comes of a moral snarl, and no harder study, no closer physical confinement, no intellectual dexterity, will disentangle it. Half your purpose is defeated if the scholars even find out that you are worried. If a sudden skilful change of the ordinary arrangements and exercises of the day takes the scholars, as it were, off their feet; if an unexpected narrative or fresh lecture on an unfamiliar theme, kept ready for such an emergency, is sprung upon their good-will; if a sudden resolving of the whole body into a volunteer corps of huntsmen on some etymological research, the genealogy of a custom, or the pedigree of an epithet, surprises them into involuntary interest; or, in a younger company, if music is made the Orphean minister of taming savage dispositions again, then your oblique and unconscious tuition has wrought the very charm that was wanted; the room is ventilated of its restless contagion, and the Furies are fled.

Or if, as is more than probable, the disorder was in the teacher himself; if the petulance of the school all took its origin in the disobedience of some morbid mood in the master's own mind or body, and only ran over, by sympathetic transmission, upon the benches, so that he saw it first in its reflection there, of what use to

assail the insubordination by a second charge out of the same temper? His only remedy is to fall back on the settled spiritual laws of his being. He must try to escape out of the special disturbance into the general harmony. He must retreat, in this emergency of temptation, into those resources of character, principle, affection, provided by the previous and normal discipline of his soul.

On the other hand, you sometimes find yourself taken up into those lofty moods where you feel gifted with an unwonted competency. You are equal to all encounters then. Your spiritual atmosphere is bracing and elastic. Every opportunity offers itself, like an instrument, right end first. The school-room that day, and all the planet, is under your feet. The recitations take the pitch of your own will; your sentences of explanation come out round and clear, like golden drops. Your steps are the march of a conqueror. Impediments are annihilated. Order is spontaneous. These elevated and depressed moods serve as high and low water-marks to show the sweep of the tidal vibration. But neither the one nor the other is produced by a direct volition. They come by indirection. The springs that produce the ebb and flow lie back of all proximate causes, among the more comprehensive laws of character. And when your state is most free and effective, you feel that the best effect, after all, is not so much exerted by intention as by some involuntary spirit of felicity possessing you. Your success is due not to specific undertakings at the moment so much as to an unconscious influence acting through your person as its organ, a motive to itself. The same thing is revealed to us if we fix our attention on that common word, good-nature. Good-nature is one of the school-teacher's benignant forces. And it is a force at once unconsciously

exerted and slowly acquired or kept; a reservoir, not a spout or an April shower.

Something analogous takes place in the purely intellectual part of our nature. And this is best illustrated by those acts of the mind which are creative or inventive. A subject that you labour painfully to unfold at one time, at another time unfolds itself. The thing you spend a whole discourse in trying to say without getting it said, after all, says itself in a dozen natural words.

The question is a practical question: Are these occurrences the anomalies they appear, or are they subject to a secret law? Was the final and unexpected elucidation of the theme in no way indebted to the previous exercise? Or, was the clarified mental faculty, when the nebulous conception came out into strong, sharp light, the result of no foregoing discipline, or immediate and determinable cause, affecting the health of the brain? Is it certain that the "dark days" at school are totally inexplicable phenomena, and inevitable? Or can those other days of liberty and joy never be created at will?

It is my belief that these instances I have cited are simply extreme examples of a force which runs through all our life, the force of a funded but unreckoned influence, accumulated unconsciously, and spending itself through unconscious developments; in other words, that these special moods, whether dense or rare, which appear to come and go without our control and without law, are yet the result of causes pertaining to the regular growth of character. I believe that whenever psychology and physiology shall come to be as exactly understood as the mathematical relations of astronomy, one of these freaks of temperament may come to be as confidently predicted as an eclipse of the sun.

III. My third and final point is that, as the unconscious tuition emanates from the inmost spirit of the teacher's life, not by accident or careless caprice, but in real accordance with the antecedent growth and quality of his character, so it is the most decisive energy moulding the interior life of the scholar. The whole divine economy, as respects our constitution, renders it impossible to detach the power of a man's speech from the style of his personal manhood. If there is a moral ingredient in the business of education at all, then, as with other institutions that affect society, the question is paramount: What is the quality, temper, life of the speaking man? Personal relations, friendships, sympathies, clasped hands, answering eyes, touch, symphonious heart-beats, constitute the chief charm and privilege and joy of existence. We can easily conceive of all the bare *materiel* of instruction being conveyed into a school-room through a mechanism of pipes in the wall, or maps let down by pulleys, and its discipline administered by a veiled executioner, no heart-relations being suffered to grow up between teacher and taught. Into what sort of a bleak degradation would a generation be reduced by such a machinery! Yet every teacher approaches to that metallic and unilluminated regimen who lets his office degenerate into a routine; who plods through his daily task-work like the tread-wheel wood-sawing horse in the railway station shed, with no more freshness of spirit than the beast, and no more aspiration than the circular saw he drives; who succumbs to the deadening repetition, and is a virtual slave, yoked under bondage to the outside custom of his work. All sorts of human service are more or less exposed to be paralyzed by this torpor of routine; but no intellectual profession stands in more peril of coming under the blight of it than that of the

teacher, partly for the reason that the same lessons recur, and partly because of the distance of attainment separating the preceptor from the pupil.

The world is full of proofs of the power of personal attributes. In most situations—in none more than a school—what a man *is* tells for vastly more than what he *says*. Nay, he may say nothing, and there shall be an indescribable inspiration in his simple presence.

There is a touching plea in the loyal ardour with which the young are ready to look to their guides. In all men, and in women more than in men, and in children most of all, there is this natural instinct and passion for impersonating all ideal excellence in some superior being, and for living in intense devotion to a heroic presence. It is the privilege of every teacher to occupy that place, to ascend that lawful throne of homage and of love, if he will. If his pupils love him, he stands their ideal of a heroic nature. Their romantic fancy invests him with unreal graces. Long after his lessons are forgotten, he remains, in memory, a teaching power. It is his own forfeit if, by a sluggish, spiritless brain, mean manners, or a small and selfish heart, he alienates that confidence and disappoints that generous hope.

I would say to all teachers—if I may here express my sense of the unity of their office, in its true interpretation, with my own as a minister

in the Church—we have been touching here the most sacred issues of our common duty. It is felt, I believe, more and more every day, by all instructors who do not insult and profane their high calling by mere frivolous or mercenary dispositions, that the saddest perplexity they have to meet is the right moral management of their charge. Would to God we might help one another in that profoundest study! On your intellectual harvest, notwithstanding the inequalities in gifts, you can rely with comparative assurance, in return for your fidelity. But when you approach the child's conscience and spirit, you confess the fearful uncertainties that invest that mysterious and immortal nature. What we are daily sowing in self-discipline we shall reap in the failure or success of our work. If we would mould the living sculpture we must first fashion our implements out of purity, simplicity, love, and trust.

But no system of education is complete till it concerns itself for the entire body and all the parts of human life—a character high, erect, broad-shouldered, symmetrical, swift; not *the mind*, as I said, but *the man*. Our familiar term, "whole-souled," expresses the aim of learning as well as any. This is the manhood that our age and country are asking of its educators—well-built and vital, manifold and harmonious, full of wisdom, full of energy, full of faith.

LETTERS ON THE EDUCATION AND EMPLOYMENT OF WOMEN.

BY AGNODICE.

LETTER II.

DEAR CLYTE,—I have before me your letter, ending with the words :

"The homely sympathy that heeds
The common life our nature breeds ;
A wisdom fitted to the needs
Of hearts at leisure."

The quotation is a very beautiful one, but not, I think, to the point. I am only demanding fuller employment and a greater sphere of activity for women who, like myself, have no "needs of hearts at leisure" to supply. Married men and women are placed in a wholly different position ; close companionship and mutual help and sympathy are essential to their well-doing and being ; the one can do nothing without the other. Let married women, then, cultivate "homely sympathy" as much as they will ; let them be "Marys in the House of God, and Marthas in their own" if they like, only let them not look upon the small domesticities of life as the all-important duty of life, but rather strive after the daily culture of mind and brain.

It is not, however, their duties and opinions that I wish to discuss with you now. I want to make you understand the disabilities of the Great Unemployed amongst women ; to consider how sad is that condition of things by which thousands of active, capable young women are shut out from work, and even the higher

branches of education, by usage, habit and prejudice. That I am not speaking without good ground for complaint I will prove to you by one instance among many. There is a school in England which, centuries ago, was endowed for the purpose of educating a certain number of boys and the like number of girls. Look at that school now ; many hundreds of boys annually leave its precincts prepared for college life or to enter any of the learned professions. Of the girls, some poor twelve are given that kind of education which will enable them to become maids of all work ! Why is this ? Can we answer the question in any other way than by saying that this is the result of men looking after the interests, so *dear to them*, of their countrywomen. We are asked : Who will have your interests so much at heart as your brothers, fathers and husbands ? We point to this school, and to many similar institutions, as proof of the fallacy of this argument.

I perfectly agree with you when you say *à propos* of my becoming a student of medicine, that most women would prefer consulting a male physician to a female. You say the individual sympathy given by a woman is not so grateful to most patients as is the idea that their doctors look upon them as mere machines out of order ; clocks whose works require looking to and brightening up. But then this objection belongs only to

the present period, when women are novices at their work. Remember, many things which appear incontrovertible, are such for their age only, and must yield to others which, in their age, are equally so.

More important is your objection that women are not sufficiently accurate, nor do they possess nerve enough to enable them to succeed in the medical profession. The want of nerve, and the inaccuracy you complain of, I believe to be chiefly due to the education they receive, and to the inherited effects of generations passed under circumstances carefully calculated to prevent habits of self-control and strength of nerve.

Girls in boarding-schools are never taught method in any way; none of their studies lead them to be exact. They are taught routine as essential to the education of a properly brought up young lady, but in such a way that they abhor it, and come home intensely relieved to be able to throw it aside with their atlases, histories, and grammars. Moreover, they mix up routine with method, and think that a systematic person must lead the life of a mill-horse, eternally the same thing at the same time. As long as Euclid, Algebra, and Logic are excluded from the finishing-school repertory—as long as young ladies are not expected to be reasonable any more than a master-cook is expected to dance well—so long will they find it painfully difficult to fit themselves to be clerks or architects, or to fill any other position that requires business-like habits and nice calculation.

With regard to nerve, we cannot expect women to attain to any great control of themselves till little girls are encouraged to lead the same outdoor life as little boys, to take the same interest in beetles and dormice, tame rabbits, and guinea pigs. A child who has been accustomed to feed and care for numerous pets, to

whom the habits and ways of insects and reptiles are explained, will never scream at the sight of a mouse or faint on account of a bat. "Punch" tells us woman's sphere (fear) consists of rats, black beetles, toads, worms, spiders, and such like things, but that would not be true if girls were made to take as much interest in the colours and markings of a frog, a snail, or a caterpillar as they are in those of a flower.

If it were not taken for granted in society that young ladies *must* be frightened at such things, they would learn to exercise some control over their nerves, and not scream at the pulling of a bon-bon, or cry out when a pistol is fired.

I do not want such rough teaching as some young girls had at a school a few years ago, where a lady lecturer vivisected a rabbit and a lobster in their presence. This is perfectly needless cruelty to the animals, and outrageous to the feelings of the girls. Teachers and parents might however do very much for their pupils and children by looking upon every foolish display of excitement as a fault, and thus teach them self-management at a comparatively early age.

Every one knows how most women are worse than utterly useless at an accident of any kind; how they fly about aimlessly, faint and shriek, and how much calmness and steadiness on the part of a woman may do not only directly but also by way of example to others. But we must not expect our women to be ready for great emergencies when they cannot sit unmoved when a door is slammed or a dog barks suddenly. Truly it has been said that "there must be more vigour and strength in the bearer than in the burden, and the great thing we want now is a sounder education for our girls. We can afford to give up many of the "coxcombries of education," which will be far better replaced

by a more solid form of mental nourishment; by a food which will strengthen and elevate the brain, and fit the student for other positions of life than those now allowed to her.

It surely cannot be necessary to teach every girl music and singing whether she have or have not a taste for it, and certainly much pain would be spared musical persons if young girls were not set to play "Rippling Rills" and "Cascades" very indifferently in every drawing-room, or encouraged to disturb air-currents by appeals to rivers to bear them far away, or laments about weary hearts and sad longings after yesterday. Also, why should they be taught drawing, unless they show a decided preference for it? Who does not shudder over a school-drawing, and who cannot see in fancy the tower, very black, with a perpetual flock of birds hovering over it, the water-fall very chalky, a few heart-shaped leaves in the foreground, no aerial perspective, and very little middle distance, so that objects have to be described in these manufactures as—that mountain on the right, or the clouds, trees and brick wall on the left.

When a girl has left school she generally frames one drawing—the best—the one with the blackest trees and chalkiest sky; and the rest are put away in a portfolio, never more to be disturbed in their smudgy abode till she have children of her own who are amused at what Mamma did when she was young.

Then again, are German and Italian always absolutely necessary acquirements? Many girls never see Germany and Italy, and if they did, going once or twice through 'Otto' or 'Ahn' will not have helped them much in making themselves intelligible to the natives.

If you could carry on a conversation with a German or Italian by ask-

ing them—"Where is the hat of your cousin?" or "Have you seen the pen-knife of my neighbour?" the knowledge of modern languages that is acquired at an ordinary school would be most useful. But unfortunately foreigners have not the craving to know about "the watch of the mother," or "the dog of your brother" that grammars and conversation books would lead one to expect.

If some of these accomplishments (a very bad name, by-the-bye, for nothing is accomplished by them) were left out, there would then be plenty of time for the study of the more exact sciences, which—and this position I think no one will dispute—are more likely to come in useful in the everyday life of an individual than a little music, a little drawing, and a little smattering of several languages.

Dear Clyte, in your letter you speak of Woman's Mission; may I ask you what you mean by that term? The word mission is very much abused in our everyday talk, and people generally have an extremely vague idea of its true meaning. I take it to signify the express thing a person is sent to do, the actual end of their living and being.

This reminds me of a picture exhibited some few years ago in London, which bore the title mentioned above. It was evidently very highly thought of, as it was well hung, and a small crowd of admirers was always to be seen in front of it.

I must describe it to you. It was divided into three compartments, in order to define very clearly the duties of woman as a daughter, wife and mother. In the first, a young girl was bending over a very infirm and much decayed old man who reclined in a huge arm-chair. She was paying him some small attention, such as picking up his handkerchief, opening his snuff-

box or handing him a paper-knife. I forget at this moment which of the *duties* of a daughter she was just then performing; at all events she looked very pleased about it, and he seemed very much pleased; a fact, I am afraid, which tells against the daughter, as the old man was evidently unaccustomed to that kind of thing. In the next division of the picture, the husband was walking about a small grass plot in a great state of depression, and frowning heavily. I much fear the butcher's and baker's bills had just come in, and he had been "found wanting," for there was nothing in the picture to help one to guess what was the actual state of affairs in the family. The same young girl, now a wife, was leaning on his arm and apparently endeavouring to console him with promises that she would try and do with a leg of mutton less a week, or something of that sort. In the third compartment the young mother was represented in a flower-garden, teaching a small child to walk. Now what I claim about this painting is that all these acts were very pretty and graceful, but the chief actor in it could not be said to be fulfilling a mission. Will even you admit for one moment, if you seriously think on the subject, that any creature with a God-given soul, with reasonable and imaginative faculties, can make it her mission, the end and aim of her existence, to pick up any number of pocket-handkerchiefs for fathers, to coax husbands when they are ruffled, or to act the part of a walking-chair to an infant.

I do not wish to underrate the necessity and kindness of these trifling

everyday performances, but I mean to affirm that they are the incidents, not the events, of a thinking woman's life. She will not, I believe, the less care for her father, husband or child, because she studies sciences, investigates truths, or endeavours to cultivate her mind to the best of her ability.

In another generation I believe and hope another state of things will be in existence, that is if women will only be true to themselves and labour unselfishly against the prejudices of the majority. Then, just as we wonder now at the condition of thousands under the old feudal laws, so will posterity marvel at the position women endured during the enlightened nineteenth century.

Prof. Agassiz says, in one of his works—"Whenever a new and startling fact is brought to light in science, people just say 'it is not true;' then that 'it is contrary to religion;' and lastly, 'that everybody knew it before.'" It is the same when the question is one of social reform; the change comes so gradually that its working is almost unperceived till we suddenly awake to the fact of its positive accomplishment amongst us.

"The old order changeth, yielding place to new,
And God fulfils himself in many ways."

With new modes of thought, with fresh ideas of Science, we require new hands to handle and fresh minds to work, for as the Great Teacher has told us—"New wine must be put into new bottles: and both are preserved."

Your sincere friend,

AGNODICE.

AN ON-LOOKER'S VIEW OF "PAYMENT BY RESULTS."

BY THE REV. GEO. BRUCE, B.A., ST. CATHARINES.

OUR educational system is a good one, indeed we are fond of saying that it is the best in the world, and it would, perhaps, be no easy matter to show that such a statement is beyond the truth.

It may seem, therefore, an ungracious task to seek for defects in it; but it is in no spirit of fault-finding that the following remarks are made; rather do I speak freely because of the conviction that the system can safely bear the most fearless investigation, and because, from its general excellence, defects are very apparent, and the necessity for their removal is the more evident.

The principle of "payment according to results" is familiar to every one at all acquainted with the working of our High Schools and Collegiate Institutes. It is a principle that seemed to promise well; theoretically it contains much to commend it, and very little to which exception can be taken.

Nothing could be more just, on the one hand, or more full of encouragement, on the other, than that schools should be rewarded according to the work done by them. Schools worthy of assistance would thus be encouraged or sustained, and institutions *effète* and unnecessary would gradually disappear, and thus the law of nature, "the survival of the fittest," would come into operation with its usual results. This, I repeat, seems on first sight, to be beyond doubt, the best way in which it is possible to award Government assistance so as to secure the ends for which it is given.

But, in carrying this plan into practical operation, two questions of crucial importance came up at once. In the first place what are the "results" which are to be considered in estimating the value of the work done? And, in the second place, what means shall be used to discover how far these results have been attained?

The attempt to answer these questions practically has brought about a state of things which is, in many ways, exceedingly unsatisfactory. It is true that schools, like everything else, should be valued according to their efficiency, and that encouragement should be so given as to reward faithfulness and stimulate activity on the part of teachers. It is also true that one of the best means of judging of the presence of these qualities is an examination of the work which has been accomplished, in other words by results; but it is manifest that results which are to form the basis on which the efficiency of our educational institutions is to be judged, should be the richest and best fruits of educational training. This should be so because, in stamping them with approval, special encouragement is given to those influences and methods of work by which these results are most readily produced, while at the same time the functions and modes of work specially adapted to the production of other results which have been passed over are discouraged, and in comparison discounted, because, so far as official recognition is concerned, they become of small value, being fruitless.

It is evident that a serious mistake here will be fatal to the scheme. Now, it so happens that the results which we desire to attain by means of our educational institutions, the results which, in their aggregate presence, fill up the meaning of the word "education," are very difficult to handle. They elude our grasp, and set at defiance all attempts to weigh or to measure them. It is true that approximations can be made, which are extremely valuable for certain purposes, and when taken under certain conditions, but they are only approximations after all, and approximations in which the coarser and more external, the least valuable, elements are gathered, while the best are necessarily often imperfectly estimated, or not estimated at all. We have no sieve fine enough to retain them, and in the strong-handed winnowing for "results," upon an examination-day, they are blown away among the chaff. That which is discovered and retained is valuable; that which is not may be even more valuable. In fact it is a practical impossibility, under the circumstances, to arrive at a full and correct knowledge of the extent to which a student has attained an education, in its best and real significance, by set formal examinations; and, in saying this, I am far from speaking against examinations as a means of mental training, and as a means of a very valuable kind of discovering the value of the instruction of the teacher and the ability and diligence of the pupil. The statement I make is that it is impossible, in this way, to gain a full or reliable knowledge of the value of the *educational benefit* communicated and received. That the case is the more serious from this fact, that the elements which are not brought into the estimate are probably of far greater value than those which are, is apparent. Such being the case, what is the outcome of our present system? Sim-

ply this: Determining to award prizes according to results, and being unable to attain to any satisfactory estimate of the results most truly valuable, we confer our rewards on the lower, because more tangible, results; *i.e.*, we reward according to the number of pupils who can pass certain examinations, who have simply been, by any means, put into temporary possession of the required number of facts in the line of the examinations. Of course, in the preparation for these examinations a certain amount of training is given; but it is narrow, superficial, unnatural and strained. It has the essentially vicious principle in it of leading teachers and pupils alike to work from *wrong motives*, and the really worthy results are mere accidents, of which the student becomes possessed almost unknown to himself—while, of the noblest results of education, the opening up of his mind, the kindling of the desire for knowledge, and the expansion of his whole being in the presence of new fields of thought, of these it is almost impossible that he can become possessed through such means, because these results have to do with *motives* and *desires*, not with the memory of facts and the knowledge of the peculiarities of an examiner.

The mistake is in making certain examinations, notably the intermediate examination, the test, practically the sole test, of the efficiency of a school, and in still farther aggravating the evil by making the number of pupils who pass these examinations the measure of the success of a school, and in giving it rank and reward accordingly. From what has been stated it will be at once evident that trustees and teachers of High Schools are compelled to bend all their energies to the manufacture of students who can pass these examinations, and that the effects of the process on schools, teachers, and pupils, beyond

this, are looked upon as of the least possible importance, since they are of no practical value. The system of teaching technically known as "cramming" is severely and almost universally condemned, but what is the sense of condemning a thing on the one hand, and encouraging it on the other? To reward a school according to the number of pupils it can "cram" through the intermediate examination, and condemn it for turning its attention to the process by which this can be most successfully accomplished, is like training a retriever to bring game to you and then scolding him because he brings it. Suppose prizes were offered at Lloyds' to the vessels which carried the greatest number of passengers across the Atlantic in the shortest time, one would read with surprise of captains and engineers being reprimanded for taking a large number of passengers on board and running under a high pressure of steam. There might be officers who valued the lives and comfort of their passengers more highly than the inducements held out in the foolish and criminal arrangement, but no thanks to the arrangement. And if, in the competition which arose among vessels, and under the influence of placarded results of the numbers landed in Liverpool or New York every half-year by each vessel, owners learned to employ captains who were *successful*, only one result could be looked for. So long as the system continued in force, seafaring men would be compelled to accept the situation, no matter how much against their judgment, or else abandon their occupation.

One may hazard the statement that the present system is contrary to the judgment of many of the best teachers and of those who stand highest even under its requirements. They do what they can for their pupils, knowing all the time that they are compell-

ed to disregard their best interests. They know that the blade, carefully ground, will carry its fine edge through the four years of a University course, and in the longer conflict of life, far better than the one which has been too quickly reduced to a temporary sharpness, with the loss of temper and the presence of clumsy proportions which will cause the waste of many an hour of golden opportunity. But the cry is, "How many blades can you turn out in six months that can cut a hair?" The answer is, "As many as any other factory." And the steam is turned on, the grindstone strikes fire from the untoward steel, a turn or two on the emery wheel of examination papers, a touch on the oil-stone, and, Presto! the thing is done. No matter how many have been ruined in the process, or how the sinews of the workman who must use the tool may be strained, payment is according to the number that can shear through the Intermediate, and proportional honour to the school follows.

The effect upon the profession of teaching is not good; it is *degrading*. I use the word *technically*, although it would scarcely be wrong to use it in its ordinary moral meaning. Men who are capable of holding the position of teachers in our Collegiate Institutes and High Schools are worthy of being entrusted with the performance of their work. Thoroughly educated, many of them men who have chosen teaching as a life profession, men who have become enthusiastic in the pursuit of their departments of science or literature, men who could hold corresponding positions with honour in Rugby or Harrow. Let us fancy Dr. Arnold reduced to the necessity of holding his position on such grounds, or even of having his work estimated according to such a standard, would the efficiency of the institution be thereby advanced? There is something unpleasant in the thought of a

teacher holding out inducements, pecuniary or supplicatory, to boys to attend his school, acting like a parliamentary whip on the night of a division, or like a trainer who holds the bridle with a firm grasp, lest some one, who has come within sight of the Intermediate, "bolt" at the first hurdle, and leave the school minus the only tangible credit for the work expended on him.

Another feature is that an unfair discrimination is made in favour of the larger schools as compared with the smaller and less influential ones. Large schools and institutes are generally in wealthy municipalities. They can offer inducements to pupils in the form of prizes and bursaries, so that the best students are naturally attracted to them by these inducements, as well as from the superior excellence of the schools themselves. The number of pupils well advanced in their work is thus very large in these schools at the opening of the session, and comparatively little is required to fit them for the examinations on which so much of the character of the school depends. But the students who thus appear to the credit and honour of these institutions have been attracted from smaller schools in which the greater part of the work of their preparation had been faithfully and efficiently done, by one or two teachers, under great disadvantages. These schools are thus impoverished, despoiled of the legitimate credit for their work, shorn of the glory which should have adorned their brows, that the heads of a few Samsons, already powerful by reason of their massive locks, may be loaded with additional splendour.

The influence upon the pupils of a condition of things in which the passing of certain examinations bulks so largely as the important work of the school, is not good. There is a fever-

ish alternation of hope and despondency too much like "chill fever" to be healthful or good for the constitution. *Quinine* is the ordinary remedy for the bodily ailment, and nature has in store for the other tonics quite as bitter and results quite as hurtful to the mental constitution. The worst is, that in place of an awakened appetite and thirst for knowledge, the very thought of study becomes distasteful. Books are like druggists' powders, and mental languor and lethargy succeed the malarial fever.

Of one thing more it is almost unnecessary to speak, it is so obviously the result of all this—an undignified and unpleasant rivalry among schools. Not an honourable competition in excellence of work, with time and ultimate results to tell the story, but a narrow spirit of jealous watchfulness is developed—at least such is the tendency of the system. The schools are like professional scullers, with their eyes on one another's shells, and their ears open to the applause from the shore as they pass and repass one another. And there is no end to the race, it is a succession of *sprints* which inevitably wear out the strength, exhaust the patience, and destroy the health, developing suspicion and distrust on the one hand, and habits of educational piracy on the other.

Looking at the question in the light of the effects produced, we naturally return to the question as to whether we are wise in allowing examinations, with all their valuable influences when properly used, to fill such an important place. Success in an examination hall proves ability and work, but the opinion of many of the highest authorities is borne out by results in the examination of actual life, that it is unwise, to say the least of it, that one of the most important departments of our system of education should be built upon ground so unreliable.

READING IN OUR SCHOOLS.

BY JACQUES.

AMONG the subjects taught in our schools, there is none that deserves more, but receives less, attention than Reading. This is no doubt partly owing to the fact, that our, in many respects, excellent educational system overlooks the importance of a subject that does not help the pupil to pass a written examination.

To discuss this question fully would require more space than could be devoted to a single article, so we shall confine ourselves for the present to the consideration of two points: (1) The importance of Reading as an accomplishment; (2) Some of the reasons why so many scholars in our schools are poor readers.

What accomplishment is there that gives more pleasure than good reading? But, how few in Ontario think of that! In every large school in the United States there is a teacher of elocution; but there are not at present in Ontario ten schools where reading is taught by one who has made the subject a specialty. Neither do parents recognize its importance; for while they willingly devote time and money to have their children taught music, they seem never to think that, of the two, Reading is the more valuable accomplishment. There are comparatively few who can become musicians, but almost every one can learn, yes, can teach himself, to read well.

Again, while there is one person who is really interested by good

music, twenty are pleased and instructed by good reading. Who has not often noticed at a musical and literary entertainment, that while the reading is going on, conversation ceases, but as soon as the music begins, the majority of the audience seem to think that the time has come for exchanging nice bits of gossip? We do not desire to decry music; we would encourage it in every way. It is refining, it is inspiring. But every one has not the gift of either singing or playing well. Where there is one who succeeds in learning to play or to sing well, there are twenty who, with even a less amount of practice, can learn to read so well that it is a pleasure to listen to them. "Eloquence charms the soul, song charms the sense."

Another advantage to be gained from reading aloud is that "the voice culture" necessary for this gives a delightful charm to the voice in conversation. What fascination we feel in listening to a good reader! What new meaning we see in some oft-told tale, when we hear it from the lips of an able elocutionist! The history of her time tells us that when Elizabeth Fry would go and read to the criminals in Newgate the parable of the Prodigal Son, the noblest in the land were glad to stand in that cold and dismal prison, by the side of felons and murderers, to share with them the privilege of witnessing the marvellous pathos which genius, taste and culture could infuse into a simple story.

The man who is a good reader possesses a power which no other art or accomplishment can give him. In every situation in life it is of use to him. In the school, in the public meeting, in the social circle, in the nursery, a good reader can comfort, amuse, and give pleasure. If, then, Reading is of so much importance, why is it that there are so many poor readers? One reason for this state of affairs is that the *teachers themselves cannot read well.*

Now, we know that it is quite possible for a person who cannot sing very well to teach others to make more music than he can himself. So it is in reading. A teacher, who cannot himself read very well, can, by careful and judicious criticism, help his pupils to read more than passably well. But too often the teacher looks upon reading as one of the unimportant subjects, as one which requires little or no study at home. He will carefully prepare his problems in arithmetic and make notes of the points in the grammar lesson that he wishes to bring out, while the 'Reader' is never looked at until the class is called up; and then he will open the book, and reclining in his chair, listen to scholars saying over words, and correct them only when some flagrant mispronunciation is made.

To teach a reading lesson well, the teacher should be familiar with his lesson. He should have some well-defined plan of the manner in which the lesson ought to be taught. He should know clearly the meaning intended to be conveyed by the author, and be prepared with questions calculated to rouse the attention of his class and fix the lesson on the mind of each pupil.

Secondly: *The matter of the lesson is beyond the comprehension of the pupil.*

We often hear scholars labouring over "Belial's Address," or "Thanatopsis," without understanding the

meaning of a single sentence. This, of course, produces in the child a distaste for his lesson, and instead of his reading being a useful and pleasure-giving exercise, it becomes hateful drudgery. Let the teacher then select a lesson that the child can comprehend and then read this over to the class carefully, sometimes enunciating passages incorrectly, and teach his scholars to criticize the various renderings given.

Again, *The lesson is often too lengthy.*

A class is sometimes permitted to read five or six pages at a lesson and then only once over. And this is done as hurriedly as if the child's well-being depended on getting through his book in the very shortest space of time possible. The effect of such a course is to make the pupil lose all interest in this branch of study. A page or two at the most is quite sufficient for a lesson. The piece should be read in sections, every word defined, and the whole lesson carefully reviewed.

Again, *Children read after the teacher, having no more intellectual drill than if they were parrots.* How often we hear such a sentence as, "*It is an ox,*" drawled out "*It—is—an—ox.*" Many teachers seem to have the idea that there is no use in teaching simple sentences with a view to anything more than the pronunciation of single words. They think that it is time enough to teach reading when the pupil is in the Fourth Book. This is a great mistake. If the pupil is correctly taught the sounds of the vowels and consonants, the work is half done. The scholars will grow up to be good readers, because from the outset, they are taught to think what they are doing; they are taught to be natural. But how often we hear scholars who, when asked to read a selection, pronounce the words in a monotonous voice, and in a dull dispiriting manner, while not a thought of the meaning enters their minds!

What a waste of time such reading is! And it all arises from the fact that the pupils, at a time when most susceptible of influence, contracted a habit which will cling to them more or less during their whole lifetime.

Many teachers think that they cannot improve in elocution because they have never taken lessons from a Professor of the art. Of course it would be a great help to them if they could do so; but in reading, as in other things, the student must be his own instructor. The chief requisite of a reader is common sense. Almost any one who thinks what he is doing, and will put himself in the position of the person whose words he is repeating, can teach himself to read well. He can find, in books on elocution such

as those written by Prof. Bell, Prof. Lewis of Toronto, or Prof. Andrews of Montreal, many hints and rules which, if thoughtfully applied, will enable him to improve in elocution far more than he would believe until he gives the plan a fair trial—a fair trial, we say; spasmodic efforts will avail nothing.

For example, suppose that a person's articulation is faulty. Prof. Andrews gives the following advice: "Let a sentence be selected and the pupil subjected to the following drill: (1) Utter every element separately. (2) Utter every syllable separately. (3) Utter every word separately. (4) Read the sentence in a loud whisper."

This rule, the writer of this article knows, has been beneficial to him.

THE PRIMARY SCHOOL IN CHINA.

HOW often have we been told, on examination days, that we were to be the men of the next generation; that some of us would be merchants, some lawyers, some doctors, some ministers; that perhaps there were even among us some who would sway the destinies of the nation! And our young minds, imbued with the belief that knowledge is power, have resolved to acquire knowledge at whatever cost. So too the Chinese youth. It is his ambition to be a scholar, for learning is the passport to the highest official positions in the Empire. For more than a thousand years appointments to government offices in China have been nominally on the results of competitive examinations. So it is the ambition of every father to send his son to school as soon as he is able to speak plainly, and if he gets on well with his studies no expense will be spared on his education. The remarkable fact, however, is, that with

this universal desire for education on the part of the people, and the high value set on it by the rulers, there is no public school system. All elementary schools are originated and maintained by private enterprise.

School-houses are seldom built for the express purpose on a carefully chosen site, with due attention to everything conducive to the health and comfort of the pupils, as with us. A large room such as might be used for a small store is rented either by the teacher or the parents wishing to open a school. In the windows where the merchant would display his goods are screens of white cotton or paper to keep the children from looking out and the passer-by from looking in. In this room, which is never well ventilated, the pupils are kept pent up from morning till night, in violation of all the laws of health, and one might almost say of humanity too. The floor is usually of clay, hard packed and often

black with dirt and dampness—sometimes of large square red earthen tiles. The furniture consists of a table about four feet long and two wide, with two drawers in it for each two of the scholars, at which they sit on high benches without backs, like milking-stools with long legs. Tables and stools are provided by the pupils, and are their personal property, to be taken with them if they should be removed to another school. It is perhaps a significant fact that the drawers in which the pupils' books and stationery are kept, are almost always provided with locks. The teacher's table and stool differ only from the pupils' in being larger and generally of a little finer manufacture. The walls, which are rough-plastered, are ornamented with long strips of gaily coloured paper—about five feet long by a foot wide—pasted up or mounted on rollers like our wall-maps, and hung up, on which are written in free running hand (almost unintelligible to any one who does not know what the sentence is) wise saws and auspicious sayings from the ancient Chinese classics, very much as school-room walls here are decorated with mottoes and texts of Scripture. The ceiling is of bare rafters, and the strips of pine about three inches wide and four or five inches apart, on which the tiles are laid on the outside, may be seen if the whole has not been blackened by the smoke and dust of years. Most school-rooms are dark, damp and dirty, but not in these respects much worse than the homes from which the children come, and are often a good deal better.

The teacher is not so easily described, there being so many varieties of the species. It is hard to select an average one, though you can easily distinguish him from all other kinds of men. He has a lazier and more swaggering air than the merchant, but not so lofty a swing as the petty official.

He wears stockings and shoes *always*, which distinguishes him from the farmer and labouring men and most mechanics, who wear them only on occasion. Over all his other clothes, good or bad, the long petticoat-like coat which comes down almost to the ankles, and which is nearly always made of fine grey cotton or shirting dyed blue. On his head is a little skull cap, with the appearance of which everybody is familiar from pictures, and in summer when he ventures out of doors, which is seldom if the sun is shining or rain falling, he sports a gay umbrella. If at all up in years, whether he needs them or not, he usually wears spectacles, and almost invariably smokes a brass pipe, so constructed that the smoke is drawn through a compartment filled with water before it reaches the mouth. Smoking by the teacher is not out of order in school hours. The teachers are for the most part men who are preparing for the Government examinations, or who have already failed once or twice, or several times, in passing them. It is no unusual thing for a student in China to be "plucked" at his final. Success, indeed, on the first trial, is rather the exception than the rule.

The pupils are even a more miscellaneous lot than the teachers. Urchins of all sizes and shapes, but all with clean shaven heads and the inevitable queue. Nothing is to be seen of them all day, but early in the morning shortly after sunrise, and late in the day just as the sun is going down, they are to be met everywhere on their way to and from school, with their books and copy-books stuck in their belts, which are made of a long band of blue cotton simply wound once or twice round their persons and the ends tucked in, for though their hours are so long *in school* they are still supposed to burn the "midnight oil" at home. They are all boys (*no girls ever attend school*), but it

must not be supposed they are like Canadian boys. They are far more like little old men. There is almost an entire absence of the life and mischief of our boys, which helps so much to relieve the tedium and monotony of their school days. But they wouldn't be boys if they hadn't their games and playthings. One of their favourite amusements is kite-flying, at which they are very expert, sometimes succeeding in flying them so high as to be nearly, if not quite, out of sight. They sometimes pitch *cash* (the name given by us to the Chinese copper coin—value one mill), which is very much like pitching coppers here, and they have a game, of which they are very fond, which is played with small pebbles something like jackstones. Tops they have in large variety of size and construction, and the little fellows spin them very dexterously. The rage for tops is infectious, just as it is here, and when it spreads knots of little fellows are to be seen in all sorts of places spinning away as busily and earnestly as if their lives depended on it. But these, it will be noted, are all very quiet, lazy games. Bull-in-the-ring, cat-after-the-rat, prisoner's-base, hide-and-seek, base-ball, cricket, running, jumping, and others such games are unknown. But it would take a little book to describe the Chinese boy.

The school exercises are exceedingly monotonous. The *two* things that are taught are reading and writing, at least till the pupil is 16 or 18 years old, when, perhaps, he goes to a higher school or takes private lessons from a tutor. Not even arithmetic is taught, and the majority leave school incapable of making the simplest calculations, and having no more idea of the geography of the world than we have of that of the moon. Reading occupies the whole forenoon of each day, and is taught by each pupil, without any division into classes, at his own seat "studying out loud," bawling out

sentence after sentence of the book he is reading in a sing-song tone, sometimes louder and sometimes not so loud, the din of the school rising and falling accordingly. Sometimes it is perfectly hideous, worse than Bedlam can possibly be or have been. The teacher seems to enjoy the noise. It would set a Canadian teacher mad in an hour. And the worst of it is, the children for the first five or six years have no idea of the meaning of what they read. To read well is to rhyme off page after page of their fantastic and grotesque looking "characters," without hesitation or mistake. About the only people who really understand what they read are the teachers and officials. An ordinary Chinese youth may be quite familiar with one or two thousand "characters" or words, so as to name them at sight though their shape gives very little clue to their proper sound and less to their meaning, but so ignorant of their meaning as not to be able to understand the few books he has perhaps been reading, and re-reading for years. And this is what is called education! Most of the pupils leave school before they have passed this stage. Those who remain go on to a more rational and thorough course. Writing being a more mechanical operation, is taught more rationally. The boy is armed with an ink-stone (being a piece of slate or marble, say four inches long by three wide and an inch thick, and slightly hollowed on its surface, with a little trough chiselled out in it at one end to hold water), a stick of what we call Indian-ink, and a small cylindrical brush of wild-cat's or camel's hair, with a fine point, and a copy-book of fine, very thin bamboo paper. The first half of the afternoon is given to writing. The end of the stick of ink is dipped in the water and rubbed on the stone till a few drops of ink about the consistency of thin cream are produced. In this the point of the pen

is dipped and the writing begins. The first copy-book has the "characters" printed on it in red ink. These the pupil traces carefully over. When he has had a few weeks, or months, of such practice as this, the teacher writes him a *copy*, which he places underneath a page of his copy-book. The writing shows quite plainly through the semi-transparent paper, so that its outline is easily traced. When the boy's hand grows steady, and he comes to have some command of his pen, he is allowed to write from a copy as youngsters do in our schools. Some of them, in the course of time, learn to write very rapidly and really beautifully, for a page of Chinese "characters" well written, is by no means ugly. But some of the first attempts are frightful to behold, the writing being much more intricate than ours, and the blotting capabilities of a Chinese pen being about twice as great as those of a goose quill. If the fingers are slow or clumsy they get many a rap on the knuckles from the teacher's bamboo, for corporal punishment has not gone out of date yet in the "Flowery Kingdom." The remainder of the afternoon is spent in hearing the pupils read the lessons they have learned in the forenoon. The lesson has been committed to memory, in fact, and can be read as well without the book as with it. Indeed no pupil is supposed to know his lesson until he can repeat it word for word. Thus the memory is trained and developed. It is no uncommon thing to meet with young men who, years after leaving school, are able to repeat page after page of the books they had read. The other faculties of the mind are, however, left almost entirely without cultivation by this defective, and, in many respects, absurd system of education.

The school funds are raised entirely by those who employ the teacher. The rate of the pupil varies with his attain-

ments and the reputation of the teacher. The ordinary rate is about two dollars a year for each pupil, to begin with, in addition to which he *presents* the teacher with about two pecks of clean rice per annum, and a dollar in "cash" for pocket money, to buy paper, pens, ink, tobacco, and other luxuries. The average teacher will earn from sixty to eighty dollars a year, cash, in addition to the rice and other eatables he may receive as presents. A man of high qualifications, long experience, and good reputation, may charge higher fees, and will, perhaps, have twice that income, out of which, very likely, he will have to support himself and family. No one but a Chinaman would be equal to such a task, but he can manage it nicely and perhaps have something over.

Anyone who supposes himself qualified may open a school, but if he is ignorant or incompetent his career will be short. He will be *visited* in an informal sort of way, by two or three of his neighbour teachers, who will succeed in asking him so many questions that he cannot answer that he will become the laughing-stock of his school, and before long of the community. Unless he is pretty "well up," or can turn the tables on his visitors, he will have to move on and try again, or abandon the profession altogether. By this unique process the incapables are kept pretty well weeded out. Of course, the fewer the teachers the more pupils they each have, and that means more money and more rice, and Chinese teachers are human.

It is quite apparent that the educational system of China, though hoary with age, has reached but a very imperfect development. How long it may be before one arises among them to do for their schools what a Ryerson has done for the public schools of Ontario, who knows? May it soon be! There is much need.

THE CO-EDUCATION OF THE SEXES.*

BY JOHN MILLAR, B.A., ST. THOMAS.

WITHIN a few years the subject of female education has received a large share of public attention. In nearly every country of Europe progress has been exhibited towards securing higher intellectual advantages for the female sex. The discussion, which still goes on, is not limited by distinctions arising from differences of race or creed. Christian communities are fast acknowledging the justice of woman's claims, and the reflex influence which man has felt from her improved attainments warrants continued efforts in her behalf.

In Canada the question is presenting itself at an important period in our educational history. The course of study in our High Schools and Colleges has been widened and modified to meet the growing wants of the people. The advisability of building and endowing female academies has been considered by many religious denominations. Our future position and prospects, in an intellectual point of view, will largely depend upon the policy which guides our present course of action. The course we now adopt should be one prompted by the suggestions of reason and the teachings of experience.

In this article I purpose considering a phase of the question which has been extensively discussed in the United States, England, and Continental Europe. Where and how shall females be educated, is the important matter that has developed such varied

opinions. Shall girls be taught in the same institutions as boys? I am in favour of the joint education of the sexes in the Public School, the High School, the College, and the University, and for the following reasons:

I. The system of co-education is preferable on economical grounds, since from the same expenditure of money greater efficiency will be secured. I do not attach the highest importance to this evident advantage, because, if not superior in other respects, economy alone should not settle the case. This point, nevertheless, cannot be overlooked, since the question has its practical side. With separate institutions for the sexes the cost of education will be nearly doubled if like efficiency is to be maintained. The mistaken notion that woman does not require a superior education, would seriously militate against her prospects of high attainments if the sexes are placed in separate institutions. The public would continue to neglect her wants, and the state colleges that might be provided for her training could scarcely be expected to become highly efficient. Unless provision were made by public funds, the demands of all would not receive attention. Private institutions, if established, would only answer the requirements of the wealthy, and the poor man would have no opportunity of giving his daughter the advantages of superior education. If co-education is injurious for the daughter of the

* A paper read before the County of Elgin Teachers' Association.

wealthy merchant, or professional man, is it not equally injurious for her of more humble social position? Why should not a scheme for the masses engage the attention of those who lament so loudly the evil effects of the joint education of the sexes? A system which can only benefit a class is not deserving of public support. The whole tendency of late years has been in the direction of free education. Our Public and High Schools and our national University are practically free. No man has a greater interest in having higher education accessible to all than he who is unable to pay its cost for his children. No system of education is complete that does not furnish the highest facilities for bringing to the surface the talent that may be found in all classes of the community. If higher education for women is not provided by the nation, then nine out of every ten of all the young ladies of Canada must abandon all hope of securing anything beyond the most elementary attainments. Our national system, even to the highest point of University acquirements, is the determined foe of all class distinctions. It places value on intellectual and moral worth, and on these alone. In a system of private schools and colleges, wealth is enhanced beyond its merits, and the intellectual and moral worth of the entire nation is very imperfectly developed. With co-education the country can secure, by the national institutions, facilities for enabling women to gain high attainments in every department of learning. With the separate system she can expect only schools of a very inferior character and a correspondingly inferior intellectual status.

II. Co-education furnishes greater incentives to study. Students will thus have better opportunities for observing the development of the faculties of different minds. There are some subjects that boys, as a rule, ac-

quire more readily than girls, and *vice versa*. Both sexes are, in consequence, benefited by being placed in the same lecture room. The girl who is slow in mathematical reasoning will be improved by hearing a boy demonstrate a proposition in Euclid, while her quick perception in other subjects will be of great service to the boy. Many a young woman will observe the beauty of a verse in poetry, see the force of a rhetorical figure, and grasp the meaning of an author long before a young man has discerned its depth and power. Every good teacher knows how beneficial this diversity of intellectual acumen may be made during a recitation. The best teacher does not necessarily exhibit the most elaborate explanations and illustrations. He cultivates proper methods of observation and reflection, and educates rather than instructs. He elicits from some members of his class answers to questions and solutions of difficulties for the benefit of others. Differences of mental cast powerfully assist the true educator. If the sexes are not taught together, the opportunities for employing this diversity of intellectual endowment are materially diminished. The result of separation causes each sex to form contracted views on many subjects, and to produce a one-sided opinion in many regions of thought.

III. The opponents of co-education contend, that the system is injurious to the health of girls. They say that the female sex cannot endure the same mental strain as the other, and that if girls are subjected to the same pressure as boys the health of the former must give way. Girls are, no doubt, physically weaker than boys, and if intellectual capacity and endurance are found in proportion to strength of muscle, our opponents have a plausible argument at least. Does strength of mind correspond at

all times to strength of body? Do we always find the boy who can run the fastest, or lift the greatest weight, also able to win the prize in the mental contest? Are the men of to-day who take the lead in science, literature, and politics, superior in physical strength to those who are compelled to take a place in the ranks? The superior physical power of man over woman is certainly no more strongly marked than that of some men over other men. If a girl should not be placed in competition with a strong boy, should a strong boy compete with a weak one, or a strong girl with a weak girl? If muscle, instead of brains, is to determine a system of classification, sex should be left out of consideration. Any experienced teacher knows that girls are to be found in our schools who can do an amount of mental work, without the slightest danger to their health, that would crush many boys. Application to study does not endanger health. Activity of mind, as well as activity of body, benefits a healthy constitution, while each may be carried to extremes. Some young ladies may have injured their health, and even sacrificed their lives, by too close an attention to study. Is not the same true of boys, and true in a greater number of instances?

Statistics on this matter furnish the highest court of appeal, and statistics are all against those who say that co-education is injurious to the health of the female sex. When Dr. Clarke wrote his famous book, a few years ago, to show that the joint system was destructive to the health of the female sex, his work called forth a dozen replies from eminent medical men and others. Reports from all parts of the States showed that the facts were against the Boston physician. Even Dr. Clarke, himself, was forced to admit the existence of other causes for the bad health of many American

women, such as severe changes of climate, martyrdom to fashion, late hours, perpetual excitements, and the grasping demands of the age. If co-education must take its trial for murder, it should, like other criminals, receive a fair hearing, and be allowed to call evidence in its defence. From statistics presented from Oberlin College, Ohio, the records of deaths show a more favourable percentage for female than for male students. Miss Avery, the resident physician of Vassar College, says, "the girls who studied the hardest there, were also the healthiest." The testimony from Michigan University shows that women retain the best of health while taking up the most difficult subjects of the course. The President of New York Normal School states that, "the amount of mental work which the female students perform is beneficial to their health." Professor Huxley believes that females would become physically stronger by severe study. Mrs. Garrett Anderson, an accomplished physician, the first to pass the examination of the London Apothecaries' Hall, and also the first female graduate of Paris Medical School, stated in a number of the *Fortnightly Review*, that the result of increased application to study on the part of young women would lead to a vastly improved state of health. Miss Blake, an English lady, with much English prejudice on the matter of co-education, visited and examined into the American schools a few years ago, and acknowledges that the health of females, when taught with males, does not suffer. The following remarks of a writer in a recent number of the *Westminster Review*, are very appropriate on this point: "What if the average woman is capable of less mental work than the average man? It still remains indisputable that many women are capable of much more than many men, and that the strong

women run less risk of overtaxed brains than the weak men. . . Have we never heard of the worn appearance of high wranglers and other prizemen—of energies (male energies) slackened for life because of one great strain—of Cambridge parlance about senior wranglers killing so many men who tried to keep up with them—of brain fevers and deaths among too zealous male students—of things that would give rise to fifty Dr. Clarkes if only they happened to be girls?"

Is not the health of the girls attending our High and Public Schools as good as that of the boys? Do not those girls who work hard and pass the 'intermediate' examinations enjoy as good a state of health as those who never reach that far? Much more injury is done to female health by the midnight masquerade and skating carnival than by excessive study of chemistry or of algebra. The earnest female student will exhibit the joyous laughter of true happiness, sleep soundly, and have no unpleasant dreams, while the one who has no mental stimulus, but dreamy, sham amusements, will find no tonic to remove the monotony of a dull, objectless life.

IV. Co-education will secure for females a training of a more thorough and less superficial character.

It does not follow that woman's course of study should be very different from man's because her mental characteristics are different. If a difference of sex should demand a different intellectual food, why should it not also require different physical diet? The mental, like the nutritive process, is alike for men and women. The intellectual appetite craves for the same food, and what invigorates the mind in the one sex will have a similar effect with the other. To prescribe bread and meat for man, and sweets for woman, would physically weaken and destroy the latter. Such a course would not be more absurd

than to supply boys with all the solid branches of an education and to limit girls to the so-called accomplishments. We train boys with some regard to their strong and weak faculties; with girls a different plan has been fashionable. We find woman possessing more strongly marked sensibility, acuteness, perception, and imagination, with a weaker nervous organization, and less power of reflection and concentration. The custom has been to give her such a training as will only intensify her weaknesses. She has been denied those more severe studies that would check the imaginative and emotional tendencies. She reasons badly, and therefore she must abstain from mathematics! She may lack in accuracy of thought and expression, and, of course, she must have nothing to do with mental philosophy and languages! With a nervous system, prone to ready expression of sympathy and indignation, we must take care that she can read with pleasure the sensational novel, and that alone. To educate a boy on such false principles would injure, if not destroy, his mental powers. When we train a girl so irrationally, and see the only rational result, we simply say "what a weak creature is woman!"

In condemning the defective character of woman's culture I utter no new complaint. Seventy years ago, Sydney Smith, in the *Edinburgh Review*, pointed out the utter folly of confining female education to music and drawing. Half a century afterwards, J. Stuart Mill deplored the same folly which the brilliant essayist so forcibly condemned before. Lately, Chief Justice Moss, at the University Convocation, Toronto, eloquently alluded to the false character of the education which so many were striving to give their daughters, and his remarks were quoted with approval by the press in all parts of the Province.

I am not to be understood as speaking disparagingly of music, drawing, or other subjects of that kind. I would make them not an optional but a necessary part of education. The study of music should be taught in our schools, and so efficiently, that private lessons in the subject would become something of a past age like private lessons in grammar, French, and trigonometry. The interests of woman demand, however, more than such attainments. In France, Germany, Austria, Italy, Sweden, and Russia she has passed University examinations and in many instances has been admitted to degrees. Queen's and Trinity in Ireland, and Glasgow and Aberdeen in Scotland, have, like Cambridge in England, provided University examinations for women. Our own University has moved in a similar direction and already young ladies from our High Schools have become undergraduates of that institution. The struggle for justice at Edinburgh in the matter of medical education is quite familiar. London University now admits women to all its degrees, and Harvard, the centre of the opposition in the United States to co-education, has been forced to advance with the wiser sentiment of the age. It is true Vassar College, where the playful dream of Tennyson was expected to be realized,

"With prudes for proctors, dowagers for deans,
And sweet girl-graduates in their golden hair,"

furnishes a thorough education. It should be observed, however, that whatever success Vassar has achieved has been the result of a departure from the superficial tendency of most female colleges and the adoption of a curriculum very similar to that of a good college for boys. The demand for thoroughness in England has given rise to Girton College, and its success supplies a crushing argument for those

who contend that the education of girls should be very different from that of boys. This efficient institution is only three miles from Cambridge, and is taught by the same professors as the University, and its students are examined from the same papers as those used at the degree examinations.

If these tendencies prove anything, they prove that woman should receive a thorough education as well as man. They prove still more. The University examinations for woman have proved that she has capacity as well as inclination for study. They have proved the hollowness of the culture given in many of the ladies' colleges in England. They have opened the eyes of the people to the necessity of having girls educated at schools where they may receive a thorough training. Many of the female institutions, according to the *Westminster Review*, "exist as a heritage from the past," and the death warrant of every one of them is signed. In their expiring groans they would attribute their decay to other causes than their own weakness, while many English parents find they have been paying dearly for what is only a sham and superficial gloss upon a poorly-cultured mind. Hence the agitation for a better system, and hence the tendency to co-education even in conservative England. In Scotland boys and girls have been taught together since the days of John Knox, and all attempts for separation have signally failed, and no one will say the result has injured the nation either intellectually or morally.

It is scarcely necessary to notice that when young men and women are educated together they are not obliged to take the same subjects. The principle of options or elections which has been wisely adopted in the curriculum of our High Schools and in that of all good colleges completely meets the contingencies arising from different mental inclinations and ob-

jects in life. The differences in subjects for the proper mental development of the sexes will be found very few. In Boston the course of study for girls has been made nearly the same as that for boys, and lately a meeting of head-mistresses in England unanimously favoured the opinion that Latin, so generally regarded as a boys' subject, should form the basis of higher education for females.

V. Co-education is preferable on moral grounds.

The advocates of separate institutions are often ready to admit that the other plan secures a more thorough education, and that in ladies' colleges the prevailing tendency has been towards superficiality, but they contend that womanly qualities and high moral excellence cannot be cultivated where girls are taught with boys. To say that a system is immoral in its effects forms a bold assertion, and if true, no possible advantages in other respects should justify its continuance. Are those who admit that a system promotes greater efficiency aware what follows from such an admission? Are they aware that there exists an inseparable connection between thoroughness and morality and sloppiness and immorality? Where laxity appears, there numerous other defects follow in its train. The good teacher secures efficiency by no harsh exercise of authority or incentives at variance with sound moral principles. His pupils will study from the confidence they repose in one that should be worthy of their respect. Moral influences are the most powerful agencies which a teacher can employ to promote intellectual progress. When the teacher of high qualifications knows how to use them, he cultivates moral excellence in his pupils. He must necessarily make good scholars at the same time. If he does not make good scholars the highest incentives (moral incentives) are wanting, and in a

school or college where thoroughness and efficiency are not found, there, *ceteris paribus*, the highest moral tone is wanting in the discipline and modes of instruction. Are we to understand that the best behaved pupils in our schools are not necessarily diligent? If a girl is given to frivolity, will she be improved by being placed at a ladies' college where the influence for study may be of a less potent character? Which of the hard-working girls of our schools incline to immorality? It is evident, industry in a school elevates the moral tone by giving girls as well as boys something good to think of, and an institution where careful application to study is not promoted, will also be found, if closely examined, defective in the cultivation of character.

The idea of separate institutions for women did not, I think, arise from any intelligent consciousness of a diversity in the moral development of the female mind. It is a relic of the middle ages. Priests alone at that time constituted the educated classes, and the only high seats of learning were the monasteries. When the human mind burst its shackles during the 16th century, the existing system was modified to suit the advanced requirements of the age. With the growth of intelligence grew up the great schools of England and of other lands. Soon was seen the advantage of having the other half of the race, the female sex, educated, and the secluded system was adopted. Since it had been the custom to separate man from the outside world to develop piety, it was also regarded as necessary to separate woman from association with man, in order that she might receive a better intellectual and moral training. If seclusion and separation have not tended to promote holiness, how can they produce morality which should be based on religion?

The moral influences of the sexes upon one another have been among the most powerful instruments for ad-

vancing modern civilization and refinement. True manliness is wanting in boys not favoured with the society of girls, and womanly dignity is absent in girls removed from the society of the other sex. Boys without sisters are usually less cultivated than those who, in this respect, have been more fortunate. Girls without brothers often assume a tone of conversation and roughness of manner the reverse of what is feminine. Does not each sex admire good qualities in the other? Does not each cultivate such a character as will secure the respect of the other? The young man who is ungentelemanly is not popular with intelligent young ladies. The young woman who is given to trifling, and who is deficient in womanly refinement, is not esteemed by right-thinking young men. In a well-conducted school a self-restraint is cultivated which brings out the good qualities of both sexes. Boys, when taught with girls, leave off rudeness; and the finer shadings of female character cannot be secured without the stimulus of the opposite sex. A young woman educated with young men never forgets her sex. The "strong minded" women who have brought the question of women's rights into disrepute are not the result of co-education.

Why should not our opponents be consistent and carry their principles further? Why not have separate churches for the sexes? What about the joint system, at holiday parties, social gatherings, promenade concerts, etc.? The refinement in a girl's manner is generally the reflex of her company at home and after school hours. The logic of experience brings convincing arguments in favour of the superior moral results of the joint system. The evil of boarding establishments for young ladies has made hundreds of English mothers, who were trained in them, prefer a different training for their daughters. Boston now speaks of moral and social im-

provement resulting from the co-education of the sexes. Cornell University has adopted the system, and its learned President, Andrew D. White, states that modesty and womanly dignity are promoted in consequence. A distinguished writer in the *Contemporary Review* states that no institutions in the United States have a higher moral tone than the High Schools of Pennsylvania, where the sexes are taught together. The refinement, industry, and moral principle of the students of Oberlin College, Ohio, have been acknowledged, yet the system has been followed there for half a century. Antioch College has no clandestine meetings and correspondence such as often are to be found under the plan of seclusion. After nine or ten years' experience of co-education at Ann Arbor, the former opponents of the innovation admit their error. This system prevails in nearly all the Western States. Spain still clings to the secluded method; and France is only beginning to see her errors. In Italy, the birth-place of the system of separation, indications of improvement are now visible. Germany has moved slowly in this matter, and the result of her system, on the character of the people, is very suggestive. The German system has been condemned by many of the educational writers of that country. Jean Paul Richter remarks: "I will guarantee nothing in a school where girls are taught alone."

But why go out of Canada for proofs? On the co-educating principle have been trained ninety-nine per cent. of the wives and mothers that make happy thousands of happy homes. Is not the moral character high of the hundreds of young women who attend our High Schools? Is their womanly dignity inferior to that of the young women whose training costs their wealthy parents hundreds of dollars a year? Every one by viewing his own acquaintances can determine the case for himself.

EXERTION AND OVER-EXERTION.

BY T. W. MILLS, M.A., M.D., RESIDENT PHYSICIAN, CITY HOSPITAL, HAMILTON.

VOLITION—active movements—successful opposition to opposing obstacles or exertion—these are the characteristics of all the higher forms of life as opposed to mere vegetative growth or existence.

To admire such seems to be a part of our very constitution. Stagnation, inertia, laziness, are repulsive to all rightly constituted minds. We admire the man of energy, and generally give to him the prizes that, in this life, may be at our disposal. It is now a well-established fact, that mere talent, even genius, in this age of restless activity and keen competition, cannot alone avail against moderate abilities with tireless energy.

To arouse the youthful mind to exertion, to furnish ever, as the changing scenes of life unfold, new and adequate motives to activity; to direct these motives towards the noblest ends the individual is capable of; in other words, to call forth, to the fullest, the latent powers of a human being with its unknown potentialities; this, all this, is the great, the laborious, but, at the same time, the noble task that falls to the educator; and from the fact that this is virtually accomplished before the age of twenty is reached, points plainly to the part in this task that the parent and teacher must perform.

A youth may be willing to exert himself, but knows neither his powers nor the way he shall best attain the end, nor yet what goal it may be

wisest to strive to reach. The garnered experience of humanity, and of the individual teacher, must come to his aid, or his efforts will be largely wasted, and the man himself remain a comparative savage. Who does not look back over his past career and see in it, regretfully, the waste of precious strength through lack of some directing mind? Instead of the straight course to success, ours has been the "mazy round" of the hare. This is a vast and all-important subject. The writer's effort will be an attempt at a suggestive treatment of the subject as it bears on the physical being of the student; hoping that the few following hints may lead to some fertilizing thought, in the minds of the readers of this journal, at least.

If there is any one nuisance the teacher has to contend with more than another that has baffled even the most skilful, it is that of indolence in the pupil, at least, so far as the school-room is concerned. The mischievous boy, the trifler, the prattler, all are, to a certain extent, generally making progress in one of the chief aims of school life, the acquisition of knowledge; but the downright lazy fellow, he may vegetate, he does vegetate, but not in knowledge. The great problem is in such a case to ascertain what motives, if any—and such there must be, since he is rational,—what motives do appeal to him, and do, or can, call forth exertion. A visit to parents throws light on such a matter

often, a peep into the playground may even solve the problem. Can a teacher be thoroughly successful who does not study his pupils when engaged with their sports? Can there be found any more effective way of gaining the sympathy, the confidence, and the affection of pupils, than by taking an interest in just what is dearest to them? By experience it has been proved that a little time thus spent is better than an unlimited amount of argument from birch-rod impositions or the logic of cold abstractions, which are powerless with young minds because they cannot by them be fairly understood. Why expect a child to act to-day in view of a good that is perhaps twenty years off? At least, why trust to that alone; why keep to it when it fails before our eyes daily? Moreover, we run counter to nature that decrees the child, the young animal, must chiefly use its body and its senses. Now let me assume that each reader is convinced of the importance of the question here broached, for if not, then he must feel comparatively little interest in what sports do, or do not, tend to advance physical development.

In attempting to create a scientific basis on which this subject can profitably, and with a fair proportion of agreement on cardinal points, be considered, let us lay down and discuss briefly two or three propositions:

1. Inasmuch as man's being is a compound, made up of a series of systems, so far as his *physique* is concerned, it is of the utmost importance that all these parts or systems should be proportionately and harmoniously developed.

2. The highest degree of development of each, consistent with the general harmony, is desirable.

3. When a moderate degree of development of the whole system (series) is reached, it is sometimes wise to

then direct attention to the greater growth and development of some one part, in view of the position in life the particular individual may wish to fill.

The old fable of "the belly and the members" illustrates, in a popular way, the mutual relation of parts in our physical organization; but a somewhat more exact account of things will not fail to make us appreciate the matter. To repeat one or two facts now perfectly well established in physiology, and which cannot be too well understood, let me say, that the healthy growth and nutrition of a part require that:

(1.) The part itself shall be in a normal state as regards structure. Healthy blood may be sent to a cancer, but such healthy blood will there produce, not normal structure, but cancer cells.

(2.) An abundant and healthy blood supply.

(3.) A certain nerve influence.

If the main artery leading to a part be tied or the nerve cut, in the one case, death of the part will ensue from starvation; in the other, either death or serious derangement. Of course minor evils will ensue from lesser degrees of violation of the above principles.

The healthy blood is dependent on an adequate supply of food, and a healthy condition of the digestive organs, as well as of the circulatory, lymphatic and glandular systems. The nervous system soon becomes deranged when the blood is poor in quantity or quality. Witness the headache after loss of blood and the neuralgias of anæmic persons. So that, trace the matter as far as we may, the mutual dependence of one part on another is ever more and more manifest.

But simple as this is in theory, in practice it is a very complicated problem. All the efforts of the physician are, as a rule, directed to maintaining

this balance which disease has disturbed. And how often is it that there are factors in the disturbance that even the most expert and learned cannot determine. But why allow disease to become established? How does the question of exertion bear on this balance? Practically, more now than ever before, perhaps, in the history of the world. With the spread of civilization, with the greater consequent importance of each unit of humanity, competition becomes keener. No longer do men in thousands acknowledge the nod that indicates the mere "I will" of some individual. Men are not now satisfied, as a rule, to occupy "the station to which they were born;" hence exertion, hence over-exertion. The only remedy for the latter would seem to be, in the first place, more correct views of life's destiny; and, in the second, a more thorough appreciation of the laws governing our physical being.

But we must lay a little more stress still on harmony in developments. Suppose that in the individual's employment there is a special tax on the muscles; if the digestive system is weak, a sufficient and proper supply may not be forwarded to the blood—the muscles will crave for what cannot be supplied; or they will take the lion's share, while the rest of the system will suffer.

Again, is it any advantage to the nervous system, to the brain and brain-work, to attend to the development of muscle? The size of the bones is largely dependent on that of the muscles—the size of the lungs, as shown in the writer's last paper, is dependent on that of the chest—this again related to the heart, etc. Now in activity of the brain, there is a severe demand made on the blood supply—what if the chest, the heart, the rest of the frame be small? One of the very best counteractives to a

congested head is a thorough use of the muscles. To state that good brain-work is closely related to good digestion, is only to go a step further back than the blood supply, namely to the source of the blood, the food, etc. We are now in a position, it would appear, to solve an unlimited number of problems, and to draw practical conclusions from the scientific principles stated, it is hoped, in a sufficiently exact manner for the ordinary student.

It is now easy to form a correct opinion as to what constitutes over-exertion. When a single system is so much used or so violently used that it suffers, there has been over-exertion. Again, if by the excessive use of one part, any other part of the general economy suffers, there has been over-exertion.

Nature herself, by our sensations, has carefully guarded us against any form of functional abuse of a part. If, for example, each man would stop when he feels he has reached the amount that he can safely lift, there would be little danger of muscular sprain. If a part be used after the *fatigue point* is reached, there is danger of inflammation.

The ambitious student may defy the laws of nature as indicated to him in a clear enough way by unmistakable warnings to desist, and continue to use his brain till it becomes, instead of having an excess of blood passing through from natural activity, congested,—that is an excess of blood in comparative stagnation,—till this, again, may proceed to actual inflammation and possibly destroy life.

Before proceeding to draw a few practical conclusions, it may be stated that there seems to be an almost unlimited amount of adaptability, on the part of every component system of the organization, to such forms of activity as may be imposed on each. It is largely upon this fact that the "training" of athletes is based.

Take running as an instance. It would be an almost impossible task for a man, naturally adapted to this exercise, to run a mile without resting, supposing he had not run at all for a year. But by practice the muscles required seem to move in harmony and with comparative ease. This must be referred largely to a special temporary concentration of the attention on the part of the brain, perhaps, to the task, by which there is a special development in certain parts of the organ; this seems the more probable, as what is once learned is not usually forgotten, so far as forms of physical exertion go. A man who has once learned to run can never forget the art, however his muscles may weaken; such all will admit to be a fact, whatever the explanation. This leads us to lay down this practical rule: in all exercises requiring skill for their performance, begin to practice correctly, continue correctly, and gradually increase all efforts until the climax of perfection and power capable of being reached by the individual is attained. Now, this is just what is not commonly done. The youth, in his ambition, wishes so much to become *quickly* skilful, he frustrates his efforts.

What should we say of the athlete, and of a professional career as an athlete? If the principles enunciated in this paper hold, it follows that athletes, by an excessive use of the muscles, tax all the other systems unduly; consequently, unless all these related parts are not only healthy, but strong, some one, or all of them may, indeed must, yield sooner or later. It was reported that the medical man in attendance on O'Leary, at the recent great walking match in New York, stated that all parts of the man had given out; not muscles alone, be it observed. A certain class of men should not think of indulging in athleticism at all. These are: (1.) Men

of small bones, small muscles, and, especially, of small chests. (2.) Men with any one system of the body especially weak, as, for example, a very weak digestion.

If asked to give a comprehensive answer to the question, "What is the best form of exercise for children as regards their physical well-being alone?" we should reply, in accordance with the above principles, that which will lead to the fullest development of each system, and, at the same time, preserve harmony throughout. And prominent in this, as was pointed out in a former paper, would stand the development of the chest and its contained organs; hence, some form of exercise that will involve deep inspirations, is absolutely necessary.

The writer begs leave, at this point especially, to combat an opinion entertained by not a few, that so long as children exercise sufficiently in the open air, it matters little how. This is radically opposed to all sound reasoning. What is it that troubles us all through life but to bring our powers and impulses under proper control? Why, when the faculties are just starting into vigorous development, let them run into chaos by pure intent? The sooner a child's faculties are started into use in the *right direction*, the better. To say that they should be used when the infant is five years of age, for five hours a day, is another thing, which is more injurious, if not more irrational, than the belief in the merits of pure romping. To what must we ascribe the particular value of the Kindergarten system if not to its marshalling the untrained faculties of the child into order, and under the guise of play, teaching the infant to use its powers to some purpose? It may not be amiss in this paper to pass, in brief review, some of the most popular out-door sports of the day, and those trials of strength, skill and endurance, which are at present popular.

(1.) *Walking matches*, so called, which are more commonly running contests, have little to recommend them. It may be desirable to encourage so useful and universally employed a means of locomotion as walking proper, but the present so-called "walking tournaments" simply indicate the degree of the contestant's endurance, and must lead to the ruin of the individual's health in a short time.

(2.) *Cricket*, a fine game, but there is a great deal of uninteresting standing about in it; the exercise is not well divided among the players. It is in no sense, however, too violent a form of exertion.

(3.) *Base-ball*, an excellent game but for those dreadful "red-hot" balls. There is about the right proportion of running in its practice.

(4.) *Lacrosse* is a sport that we are told originated among savages, and, until it is modified a great deal, it had better have remained among savages. Everything about it is violent in the extreme; it taxes the heart and blood-vessels to the utmost. The sight of an Indian's face when in the midst of a game of lacrosse is something not to be forgotten!

(5.) But what of *boating* and *boat racing*? A pleasanter, more healthful, more thoroughly satisfactory mode of exercising cannot be found. The influence of severe rowing exercise, as in races, on the heart and larger blood vessels has been a vexed question. This much is certain: persons with any form of heart disease should never indulge in violent efforts of this kind,

or indeed, of any kind. The sliding seat has put the chest under more favourable circumstances; there is not that tendency to compression of this part in reaching forward which was objectionable, at least to a greater degree, in the stationary seat. Perhaps the man with large chest and heart, who is not of too plethoric a habit, can most safely aspire to be the champion oarsman of his locality. No form of exercise more fully than rowing develops every muscle; few, if any, are more favourable to chest development. It must have struck every observer of such matters, for even a few years, how rapidly even the best men in each department give way before younger ones. Does it not teach this lesson? Athletism wears men out quickly. This is a matter worth pondering. Digestion, nervous system, circulatory system, all suffer amid the monopolizing exactions of the muscles. There are many considerations, beside those relating to the physical development alone, that bear on the question of the choice of a sport, &c. It seems to me that this whole subject is worthy the best attention of teachers. The matter of improving our education, as it relates to the physical, is pressing on us. The writer has attempted to lay down and elucidate a few principles that may furnish ground for very wide generalizations; hoping that all teachers may turn these principles to some account as regards their own health and development, and also as regards the physical well-being of *the coming men of Canada*.

PENMANSHIP, AND HOW IT IS BEST TAUGHT.

BY R. E. GALLAGHER, HAMILTON.

HANDWRITING is not an accomplishment for the few but a necessity for all, and, hence, how it is best taught is a practical issue in practical education. There are four methods of teaching penmanship which are widely different from each other, and which comprehend all those having any hold on our modern educational system. The first we shall distinguish as the imitative; the second as the movement; the third as the natural; and the fourth as the analytic methods.

The imitative is not a modern product but still has a strong lease of life. Its central idea is that writing is a purely imitative art, and that the constant repetition of perfect models will invariably produce good handwriting. There are four main defects inseparably connected with this method. First, it suppresses all individuality. The second objection is that it calls for no special thought on the part of the pupil, and does not strengthen or bring out independent effort. It has no educating force. The third objection is that it furnishes the pupil with no gauge of criticism or comparison, and hence with no adequate guide to the construction of the letters and the improvement of his handwriting. The fourth objection is that it requires none of that vigorous energy of teaching imperatively demanded in other branches of education. This, the one only branch which is supposed by many to require no teaching at all, and this false idea that the art of penmanship can be self-taught, depending upon imitation rather than upon in-

struction, has misled a large corps of teachers to guide an army of un-instructed pupils into the blind acquisition of some sort of a cramped hand writing, the result of which is that many of our business men and teachers (those especially who should write well) are suffering from it to-day.

On the other hand we have the movement method, the fundamental theory of which is, that all forms of the script character are but the result of certain free movements of the hand and arm. The natural deduction, therefore, is, that if the muscles are fully developed and carefully trained in movement, the rapid and easy execution of the script letters will flow therefrom as a matter of course. That the written forms are the result of certain laws of movement none will deny. But movement in penmanship is absolutely subservient to form. This will be apparent if we consider the identity of each of our written signs. It is the individual character of the forms and not the movement which preserves to us the identity of the letters. The pupils must have a definite objective point at which to aim, namely, the visible forms of the copy; and having been given the correct position and general directions of movement in making the particular forms, the only way by which he can educate the muscles and cultivate the movement is by continued and intelligent practice of those forms, whether it be a movement exercise or a letter.

We now come to the youngest child of modern thought in penmanship, *the*

natural method. As the child learns to walk by walking, and to speak by speaking, so he should learn to write by writing. The first spoken words of the child are feeble and incoherent. As he practises his mother tongue his articulation improves, and although entirely unconscious of the many processes involved, he learns to speak—he can express his thoughts. The first written words of the child will be in like manner feeble and illegible, but as he practises the script character, he will learn by degrees to master it, until it will become as natural and easy to write his thoughts as to speak them. Let us look at the conditions and see if the same method can be employed in both cases. Speaking does not require the use of a foreign instrument, but only the play of natural organs, and is therefore an almost instinctive process, one that is begun with the first dawn of intelligence, before the child learns to walk, much less to handle tools. Writing on the other hand requires the use of a wholly foreign instrument and materials, and is, and must be, a second step in education. The child can very easily learn to speak the simple idioms of the language, but the elementary processes of writing are so many obvious difficulties, which the child cannot escape from. The pen is not a voluble and pliant instrument like the tongue, nor is the arbitrary action of the hand at all instinctive. It requires at the start, and for a long time thereafter, perfectly conscious effort to make these written signs. The pupil must consciously guide the pen for every part of every letter. It is only when these arbitrary processes have become naturalized by practice that writing becomes the intuitive messenger of thought. The natural method precludes all possibility of a graded and progressive system. The expression of the simplest idea in writing must involve many complicated forms, and the conse-

quence is, that the pupil is thrown into deep water before he learns to swim.

I know there is a prevailing idea among teachers and others, that certain persons are born to be naturally good penmen while others are doomed to be mere scribblers their whole lives. While I admit that some children can learn to write more readily than others, I contend that every child can be taught to write well, with the proper mode of explanation, and a little encouragement and enthusiasm on the part of the teacher. In fact I am perfectly satisfied as to this, for so far as my observation has extended, I have found that half an hour per day for the short period of from three to six months, under careful instruction, a pupil who has any energy at all, though he may be what we term a "bad writer," will acquire a good legible free hand. I have seldom known it to fail.

The analytic method is the true method of teaching writing. It best interprets the science of penmanship, and reduces all its forms to a beautiful symmetry, order and progressiveness. The Spencerian system, which is now being taught by all successful teachers of penmanship, can be explained by the teacher to be better understood by the class according to the analytic method than by any other. It does not elaborate a beautiful theory of the alphabet of no practical value, but it goes back to the muscular action in producing the letter to the mind, and asks—What is the conception there? Is every part clear and distinct to the mental vision? The first step in the analytic method is to know; the second to execute. Criticism has also an important function in applying knowledge to practice and in measuring results. Here are the three educating powers in this art; *Knowledge*, informing and guiding; *Execution*, doing the work; and *Criticism*, pointing backward to

error and forward to progress. The analytic method, moreover, is not a drowsy one, inviting to apathy. It brings light, life and energy into penmanship, and stirs up the sleepers. Thought directs practice. Every line is an interpretation of an idea, and the mind thinks out what the hand executes.

Believing that penmanship is both an artistic and a mechanical science, and that the practice of a good system of penmanship has a far broader significance than that generally attributed to it ; that it is not only a medium of expressing our thoughts and transacting our business, but is also, as a study and exercise, a refiner of the senses, a trainer of the eye and intel-

lect, and a stimulator of taste and order, I would urge its more painstaking cultivation in our schools.

It is said that nineteen out of twenty of our young men follow commercial pursuits. To them, therefore, a good handwriting is indispensable : it is half their battle to success in securing and maintaining lucrative employment. In fact so much importance is now attached to good penmanship, that a young man is thought unfit for business life unless he is a good penman. How desirable, therefore, that this subject should receive prominent attention in our schools, and that the best methods of penmanship should be intelligently understood.

NOTES.

1. *Passing Books and Pens, &c.*—I would recommend that the books and pens be distributed and collected at each lesson by monitors ; having two monitors for each row of seats, one for the books and one for the pens. Pens should be renewed at least once a week. Good materials should always be used in the way of paper, ink, &c.

2. *Position at desk.*—A front position is the only proper position for this exercise. I would strongly recommend it to the teacher. Pupils should sit upright, without reclining against the desk, with head slightly inclined forward. The right arm should not sustain any of the weight of the body, but merely its own weight. *Let the position be as natural as possible.*

3. *Manner of holding the pen.*—Don't let the hand roll to the right. Keep the back of the hand turned up so that the pen stock will point over the right shoulder. The pen must not drop down between the thumb and

forefinger, but be kept up in place by the thumb. The wrist should be kept clear from the paper, allowing the arm and third and fourth fingers to touch the paper only. Allow them to hold the pen as naturally as possible, without contracting the fingers or the cords of the hand in any way.

4. *Teaching the beginners by counting.*—It keeps them together, gives the teacher more control, and prevents idle scribbling, and holds their attention to their work.

5. *Teaching the more advanced pupils by muscular movement.*—Give them free-hand exercises at least once a week—keeping the fingers stationary on the pen and writing from the muscles of the arm.

6. *Criticism.*—Criticise badly-made letters on the board before the class. Compare their letter with yours, or with the copy, and point out its defects.

CURRENCY LEGISLATION.*

I. MONEY, AND WHAT IS IT?

IT promotes clearness in all financial discussions to restrict the term money to those divisions of the precious metals which have the same market value, whether coin or bullion. A partial exception to these principles is found in the copper and silver coinage of small denominations, which are a legal tender only for very small sums. These are made lighter than the bullion value which their legend indicates, for the simple purpose of preventing their exportation as bullion, and securing at all times abundance of small change. Restricting the term money, as we have done, enables us to keep always in mind the radical distinction between it and all forms of credit which are used for the purpose of exchange, and which may be included under the general term "currency." Money, then, properly speaking, is a commodity, having its exchangeable value within itself.

Bank notes, bills of exchange, checks, pass from hand to hand, serve the purpose of exchange, and are properly called "currency," but the material which thus passes is in itself nearly worthless, and is simply representative of exchangeable values. Simple promises to pay money, or other commodities, at some time or place, do have an exchangeable value, but it is dependent solely upon the confidence of the purchaser of the promises in those who have issued them. These forms of credit, bank notes included, fall under the same general rules of commercial law, and depend for their commercial value, not upon themselves, but upon the trustworthiness of the promises to pay written upon them. They can never be legitimately made a legal tender for debts, or the

fundamental basis of any financial system. All credit currency is limited to the range of territory in which the makers of the promises and their trustworthiness are known.

The exchangeable value of money, let me repeat, depends not upon the stamp of the government which has issued it, but upon the weight and fineness of the metal of which it consists. It may be sold as bullion without serious loss, wherever in the commercial world it may be carried, and consequently gives its possessor the widest possible range of choice over the widest possible range of territory.

II. WHAT GOVERNMENT HAS NO RIGHT TO DO.

The most important desideratum in a coinage law, is so to fix the weight and purity of the coin, that when melted it shall as nearly as possible have the same value as bullion that it had as coin. The laws regarding coinage should, so far as possible, be determined by the estimate of the commercial world concerning the market value of those portions of the precious metals stamped as coin. Government cannot create the value on the metal coined, but it recognizes and assays it and stamps it, so that when it is used for purposes of exchange, there can be no doubt regarding the weight or purity of the pieces. It is worthy of remark, that this principle of jurisprudence here recognized, and which should condition all legislation on money and instruments of credit, was followed by Lord Mansfield in the enormous additions which he made by the decisions to the Commercial Law of England. By the study of the Roman Law, the usage of Italian cities, and the Hanse towns—by

* For the information of our readers, we publish this month a timely and well written article which appeared in a late number of *Barnes's Educational Monthly*, on the important subject of Currency, in which masters will find valuable information to aid them in dealing with questions of Stocks and Exchange.—ED. C. E. M.

the aid of expert witnesses and special juries of merchants, he mastered the whole system of common commercial usages reduced to principles and organization, and incorporated them in his remarkable decisions, which are a possession for all time.

The moment government attempts by laws or decrees to mark these divisions of the precious metals with a value greater or less by any considerable degree than the price of an equal weight of bullion in the market, it sets aside all definiteness in exchanges; and introduces an element of uncertainty in all reciprocal transfers of those rights whose values are estimated in the terms of the coinage.

Our Treasury notes, when issued during the war, represented, really, forced loans; the passing of the "Legal-tender act" was a law intended to fix the market value of these notes. After they had passed into circulation, the Treasury notes being a forced loan in the first instance, the "Legal-tender act," by requiring them to be received at their face value in payment for all existing debts, had the additional effect of a "confiscation act" to the amount of the difference in exchangeable value between specie and the Treasury note.

The right of the general government under the Constitution to make a forced loan, or to take the property and lives of the citizens for the common defence, may be conceded. When such extreme measures are adopted we can understand them, and the immediate loss, whatever it be, may be definitely ascertained. But when the "Legal-tender act" was passed, it gave to every citizen who was a debtor the right to confiscate an undefined portion of his debt at his own will. If such a debtor had made a mortgage of \$1,000 before the war, it gave him the right to cancel it by Treasury notes, whose market value might range anywhere between par and fifty per cent. of depreciation. It gave to the debtor the right to pay off his debt of \$1,000 with \$600, \$700 or \$750, according to the price of "greenbacks" measured in specie at the time when he saw fit to make the payment. We know nothing in the history

of Eastern despotism more tyrannical, more unjust, more contrary to every principle of public policy.

From China to the United States, and through thirty centuries of time, governments of all sorts have constantly interfered with money and credit, and almost universally for evil. The man who counterfeits a coin by debasing it, who alters a bank-note, a bill of exchange, or a check, is a felon in the eye of the law, in every civilized nation; but nations themselves, in their corporate capacity, have continually engaged in practices which are the same in character, criminality and result.

III. DEBASING THE MONEY STANDARD.

Down to 1355, Scotch and English money were of the same value. At this time the Scotch Government began the debasement of coin. In 1390, Scotch coin was current in England at only half its nominal value. In 1660, it was debased—according to Pinkerton—to one-twelfth the value of the English coin of the same denomination. In Germany, the original *florin* passed through successive steps of debasement till it reached one-sixth of its original value. In Spain, a gold *maravedi* contained, in 1220, 84 grains of gold, and by the end of the seventeenth century, it was debased to less than one-half the value of an English penny. The misery, injustice and immorality which these fluctuations in the coinage produced, is very inadequately set forth by the old historians and chroniclers, by reason of their want of economical knowledge; but enough may be gleaned from them to show that the evil in question may be classed properly with slavery, feudalism, and the pestilences and wars which were the chronic diseases of the body politic during a great part of the period of time to which we have alluded. Every petty sovereign guarded jealously the prerogative of coinage, with the distinct idea that it was one of the most effective means of robbing his subjects, paying the expenses of war, and maintaining his hordes of retainers.

The debasement of the standard of money below its normal rate quite generally involves the necessity of raising it again when the

debasement becomes intolerable. A sudden elevation of the standard after the period of debasement, works the same evil to the debtor class that depreciation brings to the creditor class. Governments have wrought nearly as much evil by their unwise methods of restoring the degraded standard of currency, as they have in debasing it. "The Roman citizens, being bound to pay into the imperial treasury a certain number of pieces of gold, or *aurei*, Heliogabalus, whose cunning appears to have been in no wise inferior to his proverbial profligacy, increased the weight of gold in the *aureus*, and thus obtained by a trick an addition to his means of dissipation." In the reign of Philip the Bold, in 1285, the value of French coin had been so much debased as to cause violent complaints on the part of the clergy and landholders, because of the consequent reduction of their income. To appease this discontent, and in compliance with an injunction of the pope, the king issued new coins, about three times the value of the base coins of the same denomination which they replaced. This caused terrible suffering among the labourers and the debtor classes. "The people," says Le Blanc, "being reduced to despair, pillaged the house of the master of the mint, as he was believed to have been the chief adviser of the measure, and besieged the Temple in which the king lodged."

The new coinage introduced into England in 1552, to replace the base money which had been previously issued, was more than four times the value of most of the coin of the same denomination which it replaced. It was estimated that the loss was £100,000,000 in the process.

It also produced the most violent commotions among the poor throughout England. In fact, legislative interference to restore a standard of value always produces suffering scarcely less than that occasioned by its debasement.

IV. THE DOUBLE-STANDARD FALLACY.

A somewhat similar variation in the measures of exchangeable value has often been brought about by the adoption of a double standard, consisting of gold and silver. The

theory of a double standard proceeds upon the idea either that gold and silver have naturally and always a constant ratio of exchange with each other, or that legislation on the part of one or several states of the commercial world is able of itself to establish and perpetuate such a constant ratio. But all experience proves the negative of both these suppositions. Gold and silver have never, in the history of the world, maintained a constant ratio of exchange with each other.

Herodotus gives the relation of silver to gold as 13 to 1; Pluto, as 12 to 1; Menander, as 10 to 1; Livy speaks of the relation—B. C. 189—as 10 to 1; Suetonius tells us that Julius Cæsar exchanged silver for gold in the ratio of 9 to 1. The most usual proportion among the early Roman emperors was that of 12 to 1. From Constantine to Justinian it ranged between 14 and 15 to 1. Since the discovery of America it has ranged from 14 to 1 to 17½ to 1. Between 1853 and 1876, silver varied in value, measured in gold, from 16½ to 47 pence an ounce.

During the year 1875 there were 78 different variations of the price of silver quoted in the London market. In 1876 the variations were 151; in 1877 they were 98. During this period it is probable that the variations in the price of wheat can scarcely have exceeded those of the price of silver.

Where the law gives the debtor his choice to discharge his obligations either in gold or in silver, the natural tendency is to select the cheapest form of money. This would introduce an element of uncertainty into all time-contracts, and ultimately the coinage which comes to be permanently the cheapest, measured by the legal ratio, will drive out the dearer, thus introducing practically a single coinage of the baser of the two metals.

In looking over the history of the various substances which have been used as the measures of value, we detect a tendency in commerce to pass from the use of the less to that of the more valuable material. Hence the fact, so unmistakable in the commercial world at the present time, that the drift is towards a single gold standard. Our late legislation on the "silver question" was

openly avowed to have been adopted to protect the special interests of two classes of persons—debtors and silver-miners, involving all the possibilities which we have noted, and in addition, the adoption of a ratio between gold and silver, which has made the silver dollar of the new coinage worth in the world's market from 82 to 85 cents—legislation which will not be likely permanently to raise the value of silver. Its main effect will be to enable a man who owes a debt of \$1,000 to pay it off with \$820 or \$850. This may be legal; but it is not moral, honest, or economically safe.

V. THE LESSONS FOR THE TIMES.

1. The tendency manifest from the remotest periods to pass, in the selection of the medium of exchange, or substance of money, from the less to the more valuable material—from shells, cattle, salt, skins and wheat, to iron and copper, to alloys of copper and tin, from these to silver, and from silver to gold—that is, to a single standard, and that formed out of the most valuable material adapted to the purpose of division and circulation.

2. This tendency manifests itself in different countries and ages, just in proportion to the development of commerce, and the extent of commercial transactions, and that this tendency is subject to limitation only in the case of money of small denominations, used in retail trade, in what is called “subsidiary currency,” not used as the measure for large transactions.

3. As trade enlarges its area, and commodities increase in the rapidity of their movements—as the percentage of profit on single transactions tends to grow less, it becomes more and more necessary that the standard of value should be single, common and stable, not only in each nation, but throughout the commercial world.

4. A double standard involves the necessity of regulation by law of the relative value of the two substances selected for money. But all experience shows that no two commodities, subject to the law of supply and demand, can be kept by any human power at the same ratio with each other.

5. By the action of Gresham's law, the cheaper money tends to drive out the dearer money, and a double standard tends, to a limited extent, to make all the uncertainties and fluctuations incident to a debased currency chronic in any country which adopts it. Hence the slow but definite movement of public opinion and practice all over the world towards the adoption of a single standard.

6. The effect of our silver legislation is, by making legal a false ratio between gold and silver, a new Inflation act for the special protection of silver miners and debtors, and an attempt to set aside the practice and convictions and spontaneous tendencies of nearly the whole commercial world.

M. B. ANDERSON, LL.D.

Pres. Rochester University, N. Y.

THE PUBLIC SCHOOLS OF ENGLAND.

BY THOMAS HUGHES, AUTHOR OF "TOM BROWN'S SCHOOL DAYS," ETC.

From the "North American Review."

PART II.

We have now reached the great group of Elizabethan schools, to which indeed Shrewsbury may also be said to belong, as it was not opened until the Queen had been three years on the throne. The two metropolitan schools of Westminster and Merchant Taylors' were in fact founded in 1560, two years before the opening of Shrewsbury. Westminster as a royal foundation must take precedence. It is a grammar-school attached by the Queen to the collegiate church of St. Peter, commonly called Westminster Abbey, and founded for the free education of forty scholars in Latin, Greek, and Hebrew. The Queen, with characteristic thriftiness, provided no endowment for her school, leaving the cost of maintenance as a charge on the general revenues of the dean and chapter, which indeed were, then as now, fully competent to sustain the burden. Other boys have always been taught with the foundation scholars, the number being fixed by statute at eighty; but this limit has not been observed. The scholars are elected by a system of competition called the challenge, of the nature of the old academical disputations. The candidates, generally about thirty in number competing for ten vacancies, come up by twos before the head master beginning from the lowest. The junior proceeds to challenge the other to translate some portion of Greek epigram or Ovid's *Metamorphoses* prepared for the occasion. If he can correct any fault he takes the other boy's place, who becomes challenger, and attacks in his turn. Their "helps," senior boys who have prepared them, stand by and counsel their "men," and the head master moderates, deciding the point in issue when there is any doubt as to the correctness of an answer. The boy who remains successful now challenges the candidate next in seniority, and so the struggle goes on for some six or eight weeks, the boys who are highest at its close getting the vacant Queen's scholarships. These carry them either to Christ Church,

Oxford, or Trinity, Cambridge, the heads of which colleges are on the governing body of the school, with the dean and chapter, and six laymen, four named by the Crown and two by the governing body. The monitorial system is in force in college. The four head boys, as captain and monitors, are formally intrusted with the maintenance of discipline by the head master before the whole school. The system of fagging was onerous until quite recently, so much so that its severity was noticed by the Commissioners in their report in 1864. It has since been lightened by the appointment of servants to do part of the work (such as calling in the early mornings, providing hot water, and making up fires). There is no school chapel, the boys attending the Abbey services. The hall is the room in which Henry IV. is lying sick in Shakespeare's play, and the dormitories and schools form the southern side of Dean's Yard. The playground is in Vincent Square, half a mile from the school, and the neighbourhood is not a healthy one in any sense for boys to frequent. Moreover, the headquarters of rowing, for which the school was justly celebrated, have migrated of late years to quieter and safer waters at Putney, six miles up the river. Having regard to which facts, and the constant closing in of the city, efforts have been made to remove the school out of town. These, however, have failed through the opposition of old Westminsters, fearful of breaking the school traditions and the connection with the abbey, and of abandoning the privilege which the upper boys possess of entrance to the galleries of the Houses of Parliament to hear the debates. Up to the last generation Westminster was the school of several of the great political families. Two premiers, Lords Aberdeen and Russell, were educated there, and many other statesmen; and, though this is no longer the case, the old tradition gives way so slowly that it will probably take at least another generation to transplant the school to a healthier and more eligible site.

Merchant Taylors', the other metropolitan school founded in 1560, owes its origin to Sir Thomas White, a member of the Court of Assistants of the company, and founder of St. John's College, Oxford. It was probably his promise to connect the school with his college which induced the Company to undertake the task, and to declare by the statutes, taken in great part from Dean Colet, that their school should "have continuance by God's grace for ever." Sir Thomas White redeemed his promise by endowing the school with thirty-seven fellowships at St. John's College. The fellowships have been thrown open by an ordinance of the Privy Council founded on an act of Parliament, but the school still retains twenty-one scholarships at St. John's, of £100 each, and tenable for seven years. The school is a day-school of 250 boys, the vacancies being filled by the nominees of the Merchant Taylors' Company. The boys now pay £10 a year for their education; all the surplus cost, amounting to about £2,000 a year, being borne by the company, in whose hands the management and government of the school exclusively rest. The only trace of the monitorial system is that some of the elder boys assist in the school-work. There is no fagging, the boys never being together out of school-hours. Merchant Taylors', it will thus be seen, is a grand foundation, of the highest value as a place of education to the sons of professional men and clerks living in London; but as a pure day-school, without the monitorial system, and belonging to (or at any rate claimed as belonging to) a city company, would scarcely have been classed as a public school but for the fact that it is so included in the Public School Commission of 1861. Its inclusion tends to show how broad the authoritative interpretation of the term is with the Privy Council and the legal advisers of the Crown.

Rugby, or the free school of Lawrence Sheriff, follows next in order, having been founded in 1567 by Lawrence Sheriff, grocer, and citizen of London. His "intent" (as the document expressing his wishes is called) declares that his lands in Rugby and Brownsover, and his "third of a pasture-ground in Gray's Inn Fields, called Conduit Close," shall be applied to maintain a free grammar school for the children of Rugby and Brownsover, and the places adjoining, and four poor almsmen of the same parishes. These estates, after providing a fair schoolhouse and residences for the master and almsmen, at first produced a rental of only £24 13s. 4d. In due time, however, Conduit Close became a part of central London, and Rugby School the owner of eight acres of houses in and about the present Lamb's Conduit Street.

The income of the whole trust property amounts now to about £6,000, of which £255 is expended on the maintenance of the twelve almsmen. There is no visitor, and the foundation consists simply of a board of trustees, a schoolmaster, assistant masters, a chaplain, and the boys. The trustees have from the first been country gentlemen of Warwickshire and the neighbouring counties, who have used the school for many generations for their own children. They were until lately self-electing, and the same names, those of the Warwickshire landed gentry, appear again and again ever since the creation of the board in 1614. The trustees possess legally almost unlimited powers over the management of the school, but in practice have left very large discretion to the head master, who in internal administration, appointing assistant masters, regulating studies, and the like, has practically done what he thought best, always, however, with the knowledge that the power of review and correction rests with those to whom he is responsible for the discipline and instruction of the school. This responsibility has, however, been shared by the assistant masters for the last fifty years, since Arnold on his appointment introduced the practice of holding a "levy of masters," as it is called, monthly, for consultation on school business. The practice has been attributed to his love of equality and well-known opinions on government; but, whatever the origin, the custom has worked well, and is not likely to be disturbed. The tutorial system of Eton was introduced at Rugby toward the end of the last century by Dr. James and Dr. Ingles, Eton men who were successively head masters. As modified by Arnold it still prevails. Rugby has no special connection with either university, but provides five exhibitions annually, ranging from fifty to eighty pounds, which are open to free competition. At Rugby the school close is thirteen acres in extent, and the games played in it are regulated by an assembly called "big side levy," consisting of all boys in the upper school, another democratic arrangement not in use in any other of the nine schools. The monitorial system exists in a carefully guarded form. The sixth form, or præpostors, exercise it over the whole school, for the purpose of enforcing rules and preserving order. They have the power of fagging all boys below the fifth form. The duties of the fags are limited to dusting the sixth-form studies, making toast at breakfast and tea, running messages, and attendance at games. Attendance at football, hare and hounds, and brook-leaping is compulsory, except for those who are excused by a medical certificate; in fact, as the Commissioners report, fagging at games

has been reduced almost "to a system of making physical education compulsory in all cases in which there is no reason to apprehend evil effects upon the health from compulsion." The chapel is only used on Sundays, Good Friday, Ash Wednesday, Ascension and All-Saints', and on Founders' Day, October 19th. On other days there are short morning prayers in the big school and evening prayers in the boarding-houses. There are sixty-one foundationers, or boys living in or within ten miles of Rugby, who get a free education, except in tutorial work, for which they pay like the other boys. The head master's emoluments, including profits on boarders in the schoolhouse, amount to between £3,000 and £4,000 a year; those of the thirteen classical assistant masters range from £340 to £1,620; those of the three mathematical from £580 to £1,410, while the two modern language masters get £1,284 and £286 respectively. Of all the nine schools, it is the one which has made the greatest advance toward grafting a new curriculum of modern studies upon the old classical system, though it has stopped short in this respect of the best schools of the Victorian era.

Harrow school was founded in 1571, four years later than Rugby, by John Lyon, a yeoman of the parish. He was owner of certain small estates in and about Harrow and Barnet, and of others at Paddington and Kilburn. All these he devoted to public purposes, but unfortunately gave the former to the perpetual education of the children and youth of the parish, and the latter for the maintenance and repair of the highways from Harrow and Edgeware to London. The present yearly revenue of the school estates is barely over £1,000, while that of the highway trust is nearly £4,000. But, though the poorest in endowments, Harrow, from its nearness to London, and consequent attractions for the classes who spend a large portion of their year in the metropolis either in attendance in Parliament, or for pleasure, has become the rival of Eton as a fashionable school. The governors are a corporation under charter, and were six in number until increased to twelve, on the recommendation of the Public Schools' Commissioners. They are accustomed to interfere even less than the Rugby trustees with the administration of the head master, who himself appoints all assistant masters, gives leave to open boarding houses, and is responsible for the financial arrangements of the school.

The custom, however, of masters' levies exists at Harrow as at Rugby, having been introduced by Dr. Vaughan, the late head master and a distinguished pupil of Arnold. Harrow, like Rugby, has no special connec-

tion with either university, but, unlike Rugby, has few exhibitions open to yearly competition. Two "John Lyon" scholarships are given yearly, of the value of £30, and tenable for four years, and there is also a scholarship of £100 a year tenable for three years, becoming vacant every fourth year. On the other hand, in prizes of medals and books for the best examinations in special subjects, the school is unusually rich. The monitorial and fagging systems are similar to those of Rugby, the chief difference being that the monitors are only ten in number; each monitor may exempt four fags from football if he is playing himself, while the head of the school may exempt any number, and that cricket fagging is more completely organized, the whole number of fags being taken in rotation, so that each boy's turn comes only once a week. After three years boys are exempt from fagging, though they may not have reached the fifth form. Private tuition on the Eton system is universal. The chapel services are confined to Sundays and a few great festivals. The choir is composed of boys who meet for practice twice a week. The masters in orders preach by turns on Sunday, a custom found to be of great value both to themselves and to the boys. The foundationers are boys resident in Harrow, and are exempt from all charges except fifteen guineas for private tuition and £2 10s. for school charges. The head master and several of the senior assistant masters have large boarding-houses, while others are allowed to keep smaller boarding-houses in which higher rates are paid, amounting on an average to an extra cost of £50 a year. These are intended for boys whose health is such as to render them unfit for the rougher discipline and more bracing atmosphere of large houses. The emoluments of the head master, after making deductions for exceptional expenses falling on him in respect of repairs of the buildings and otherwise, the result of the want of endowments, considerably exceed £4,000 a year, those of the assistant masters range between £500 and £1,500.

Last on the list of the nine schools comes the Charterhouse (the Whitefriars of Thackeray's novels). It may be fairly classed with the Elizabethan schools, though actually founded in 1609, after the accession of James I. In that year a substantial yeoman, Thomas Sutton by name, purchased from Lork Suffolk the lately dissolved Charterhouse, by Smithfield, and obtained letters patent empowering him to found a hospital and school on the old site. In the patent sixteen persons are named and incorporated as governors, which number, consisting always of persons eminent in church and state, remained unaltered until increased by

four under the advice of the Public Schools Commissioners. The governors meet twice a year to view the state of the hospital, make election of poor men and poor scholars, and do other business. The old Charterhouse, though situated in one of the most crowded and unsuitable quarters of London, had this great advantage over the other metropolitan schools, that it had a playground of five acres adjoining the buildings. The whole premises, including school buildings and hospital, residences for the masters of each, cloisters and playground, were surrounded by a high wall, pierced by only one gateway. In this inclosure the boys lived, side by side, with the "poor, aged, maimed, needy, and impotent people," the poor brothers of the hospital, and worshipping in the same chapel, a pathetic juxtaposition brought out with exquisite delicacy and humour in Thackeray's sketch of the last days of Colonel Newcome. The property of the corporation, apart from the Smithfield site, produced an income of about £23,000, of which about £8,000 was spent on the school. The boys were of three classes, sixty foundationers, named by the governors in rotation, and entitled to free maintenance and education, clothes, and a gown and trencher-cap, with an exhibition of £80 a year at either university upon passing a satisfactory examination at the age of eighteen; boarders, who lived in the masters' houses, and day boys paying £18 18s. for their education. The monitorial and fagging systems were much the same as at Westminster, except that all boys in and above the fourth form were exempt. But the old school in Smithfield is a thing of the past. Since the visit of the Public Schools' Commissioners in 1862, the governors, acting in the spirit of their recommendations, have transplanted the school to one of the most beautiful parts of England, in the neighbourhood of Guildford. The great value of the site of the old school has enabled them to proceed in the most liberal manner, and the new school buildings, boarding-houses, and arrangements of all kinds are equal, if not superior, to those of any other school in the kingdom. This experiment, the first of the kind, has been eminently successful, and its results have by this time reconciled most old Carthusians to the partial break in the school traditions and the severance of their school from the hospital and the poor brethren.

The above sketch, though necessarily meagre, will, it is hoped, help to put our readers on the right road toward an understanding of the English public-school system, which undoubtedly furnishes one more example of the curious anomalies which are found in every department of the many sided

life of the country, and also of the strong practical sagacity which underlies the national character, and enables the nation, with all its strange wastefulness and indifference to logical methods, to achieve its ends and get what it needs, practically if not scientifically. We have only to look at the names of the founders to see how the need for such institutions as these schools must have been felt in all parts of the nation before and at the time of the revival of learning. The crown, great churchmen, municipalities, commercial guilds, city tradesmen, yeomen of the counties, are all there; in fact, the only class conspicuous by its absence is that of the great nobles and landed gentry—the very class which has in the long run made most use of the schools. The main object of the founders seems in all cases to have been the promotion of the best learning then obtainable; the next, the benefit of certain specified localities and of the poor. The two objects proved in the end incompatible, and one or other had to give way; time would show which it was to be. It soon appeared that there was no demand for the best learning among the poor, and so scores of Tudor grammar-schools gave up offering it at all, and fell gradually into decay and paralysis, from which they are only now awakening. On the other hand, there was and continued to be a fair demand for "the best learning" among the landed gentry and the professional and mercantile classes, and this demand the nine schools which remained comparatively faithful to their highest trust were there to meet with more or less success. And so (as the Commissioners declare in their report) "public-school education as it exists in England, and in England only, has grown up chiefly within their walls, and has been propagated from them; and, though now surrounded by younger institutions of a like character, and of great and increasing importance, they are still in common estimation its acknowledged types, as they have for several generations been its principal centres."

We are quite conscious, however, that, after having gone with us so far, the American inquirer in whose company we started will still be entitled to repeat his question in a slightly modified form, and to say: "You have only told me that certain specified institutions, differing widely in their constitutions and methods of teaching and discipline, are public schools in your sense, and that they are so because they give a public-school education. Now, then, what is this public-school education which they give?" The same question confronted the Public Schools Commissioners whom we have so often cited, and is adverted to by them in the introduc-

tion to their report. They, speaking to an English audience, were able to a certain extent to give it the go-by, and, in their report, to treat public school education as "a phrase which is popular and sufficiently intelligible," without attempting to define its precise meaning. But this, at any rate, is not so in America, and their example cannot be followed in these pages. What gives the subject such interest as it possesses for Americans is the almost entire absence, even in the Eastern States, of educational constitutions answering the purposes which the nine schools, and their modern rivals, serve in the United Kingdom. However democratic a nation may be in spirit and character, and in its political and social constitution and organization, the time must come when it will breed a gentry, leisure class, aristocracy, call it by what name you will, as certainly (as Mr. Emerson has said) as it will breed women. The more vigorous and prosperous the nation, the sooner will the class arise; and the more healthy the class, the more certain will it be to insist on the highest culture attainable for its boys and girls.

But the highest culture cannot be brought to every man's door. However good your common-school system may be, you cannot have a thoroughly satisfactory school, so far as instruction is concerned, except in great centres of population; and, in those great centres, though the school-work and teaching may be as good as you require, the conditions of life are not the best for boys (leaving girls out of the question) from twelve to eighteen, the years between the home school-room and the university. Besides, a large portion of the class in question live too far from the great centres to make use of the best common schools, without sending their boys for long periods from under their own roofs. Some system of boarding-schools, therefore, must be established; and the problem is how it can be best done, what conditions of government, discipline, and instruction, will suit the national character and habits best, and turn out the kind of men whom the commonwealth needs most.

That the English public-school system, with all its faults and shortcomings, has done this work for the old country in a fairly satisfactory manner is an unquestioned fact, and might perhaps be safely assumed here. We prefer, however, to cite the highest testimony on the point. The Public Schools' Commissioners in their report, after a very searching criticism on many parts of the system, confess the obligations which England owes to the schools, "which, were their defects far greater than they are, would entitle them to be treated with the utmost tenderness and respect;" and, after speaking

of the service they have rendered in the maintenance of classical literature as the staple of English education, "a service which far outweighs the error of having clung to these studies too exclusively," continues: "A second and greater service still is the creation of a system of government and discipline for boys, the excellence of which has been universally recognized, and which is admitted to have been most important in its influence on national character and social life. It is not easy to estimate the degree in which the English people are indebted to these schools for the qualities on which they pique themselves most—for their capacity to govern others and control themselves, their aptitude for combining freedom with order, their public spirit, their vigour and manliness of character, their strong but not slavish respect for public opinion, their love of healthy sport and exercise. These schools have been the chief nurseries of our statesmen; in them, and in schools modelled after them, men of all the various classes that make up English society, destined for every profession and career, have been brought up on the footing of social equality, and have contracted the most enduring friendships and some of the ruling habits of their lives; and they have had perhaps the largest share in moulding the character of an English gentleman. The system, like other systems, has had its blots and imperfections; there have been times when it was at once too lax and too severe—severe in its punishments, but lax in superintendence and prevention; it has permitted if not encouraged some roughness, tyranny, and license, but these defects have not seriously marred its wholesome operation; and it appears to have gradually purged itself of them in a remarkable degree. Its growth, no doubt, is due to those very qualities in our national character which it has itself contributed to form, but justice bids us add that it is due likewise to the wise munificence which founded the institutions under whose shelter it has been enabled to take root, and to the good sense, temper, and ability of the men by whom, for successive generations, they have been governed."

In the case of nations of the same race, and so nearly identical in character and habits as the people of the United States and the English, it may reasonably be assumed that a system which has borne such fruits in the one is at least worth the careful examination of the other. We purpose, therefore, in a future number to recur to the subject, and consider what is of the essence and what are the mere accidents of the English public-school system, in the assurance that, whether it may or may not approve itself to the American people, an intelligent understand-

ing and appreciation of it will greatly help them in determining how to deal best with their own boys at the age when the mind is

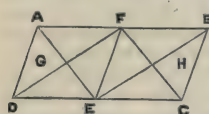
"wax to receive and marble to retain," and the characters of most men take the bent and impress which they never lose in after-life.

ARTS DEPARTMENT.

[NOTE.—We publish this month Solutions to the Algebra Problems which appeared in the April issue; also several problems contributed by Mr. D. Forsyth, B.A., of Berlin, and the Honor Problems from the University of Toronto Examination Papers. ARCH'D. MACMURCHY, M.A., Math. Ed., C. E. M.]

SOLUTIONS TO PROBLEMS IN APRIL NUMBER.

I. Let $ABCD$ be a parallelogram having the side AB double of AD . Let the angles be bisected, then the diagonals of the rectangle



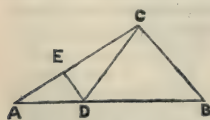
formed by the bisectors are each equal to the shorter side of the original parallelogram. Let the

angle BAD be bisected by AE meeting CD in E , then the angle FAE is equal to the angle EAD ; but FAE is equal to AED , AB being parallel to CD ; therefore, DAE is equal to DEA : therefore DE is equal to DA ; therefore E is the middle point of CD .

In the same manner it may be shewn that the straight line bisecting the angle B will pass through E , and the straight lines bisecting the angles C and D meet in F , which is the middle point of BA . Let AE , DF cut at G , and BE , CF at H . Join FE , then FE , AD are equal and parallel, because they join equal and parallel straight lines towards the same parts; and since $FGEH$ is a rectangle, the diagonals are equal; therefore the other diagonal GH is also equal to AD .

Wherefore if &c.

II. ACB is a right-angled triangle, ACB being the right angle; AD is one-third of AB . It is required to prove that the square



on CD is equal to the square on AD , together with one-third the square on AC .

Draw DE parallel to BC , and therefore at right angles to AC . Join CD ; then the square on $CD = l$ squares on DE , EC , and

the square on $AD = l$ squares on DE , EA ; but, because AD is parallel to BC , $AD : DB :: AE : EC$; but AD is one-third of AB , therefore AE is one-third of AC ; therefore the square on $CD = l$ squares on DE and on $\frac{2}{3} AC$, that is, the square on DE and $\frac{4}{9}$ square on AC ; therefore the difference between the squares on CD , AD is $\frac{1}{9}$ the square on AC , that is, the square on $CD = l$ square on AD , together with $\frac{1}{9}$ the square on AC .

VI. In an A. P., $s = \frac{n}{2}(l+a)$, where $s =$ sum, $n = n^{\circ}$ of terms a , l , first and last terms; but $l+a = 2m$ where $m =$ middle term. $\therefore s = nm$, but $n = 2p+1$ and $m = 2p+1$. $\therefore s = (2p+1)(2p+1) = 4p^2 + 4p + 1$.

VII. $\sin 3\theta = \cos 2\theta$; but $\sin 3\theta = 3 \sin \theta - 4 \sin^3 \theta$, $\cos 2\theta = 1 - 2 \sin^2 \theta$.

$\therefore 3 \sin \theta - 4 \sin^3 \theta = 1 - 2 \sin^2 \theta$, i.e., $4 \sin^3 \theta - 2 \sin^2 \theta - 3 \sin \theta + 1 = 0$.

$(\sin \theta - 1)(4 \sin^2 \theta + 2 \sin \theta - 1) = 0$; $\sin \theta - 1 = 0$; $\sin \theta = 1$; $4 \sin^2 \theta + 2 \sin \theta - 1 = 0$.

$\sin \theta = \frac{-1 \pm \sqrt{5}}{4}$. $\theta = 18^{\circ}, 162^{\circ}, 90^{\circ}, 216^{\circ}, 324^{\circ}$.

R. C. DONALD, Toronto.

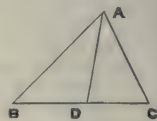
III. First, if $AD \nparallel BD$, then $AD \nparallel DC$, and the angle $B \nparallel BAD$, and angle $C \nparallel DAC$.

$\therefore$ angles $B + C \nparallel A$, that is, A is less than $\frac{1}{2}$ the sum of the angles of a Δ , that is, $\angle \frac{1}{2}$ of 2

right angles, that is, $\angle$ one right angle;

$\therefore$ the angle at A is acute.

Similarly, if $AD \nparallel BD$, then A is obtuse.



V. If $ax^4 + bx^3 + cx^2 + dx^2 + 8$ be a perfect square, it must be of the form $(mx^2 + nx + p)^2$
 $= m^2 x^4 + 2mnx^3 + n^2 + 2mpx^2 + 2np x + p^2$.

Equating coefficients of like powers of x :

$$\begin{aligned} a &= m^2, & d &= 2np, \\ b &= 2mn, & c &= p^2. \\ c &= m^2 + 2mp, \end{aligned}$$

$$\text{Then } \frac{a}{8} = \frac{m^2}{p^2} \text{ and } \frac{b^2}{a^2} = \frac{4m^2 n^2}{4n^2 p^2} = \frac{m^2}{p^2},$$

$$\text{and } \frac{b^2}{4a} + \frac{2ad}{b} = \frac{4m^2 n^2}{4m^2} + \frac{4m^2 n p}{2mn}.$$

$$= n^2 + 2mp$$

$$= c,$$

WM. MIDDLETON, Toronto.

IV. (a.) If

$$x + y + z = 1 + \sqrt{2(1-x)(1-y)(1-z)},$$

shew that $x^2 + y^2 + z^2 + 2xyz = 1$.

By squaring, the expression becomes

$$x^2 + y^2 + z^2 =$$

$$1 + 2 \left\{ 1 - (x + y + z) + \sqrt{2(1-x)(1-y)(1-z)} \right\}$$

$$- 2xyz; \text{ that is, } x^2 + y^2 + z^2 + 2xyz = 1, \text{ since}$$

$$2 \left\{ 1 - (x + y + z) + \sqrt{2(1-x)(1-y)(1-z)} \right\} = 0.$$

(c.) (1) $x = y + \frac{1}{z}$, (2) $y = z + \frac{1}{x}$, shew that

$$z = x - \frac{2}{y}.$$

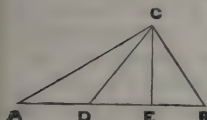
$$\text{By (1) } z = \frac{1}{y - z}; \text{ by (2) } z = \frac{xy - 1}{x}.$$

$$\therefore \frac{1}{x - y} = \frac{xy - 1}{x} = z;$$

$$\therefore z = \frac{xy - 1 - 1}{x - x + y} = \frac{xy - 2}{y} = x - \frac{2}{y}.$$

GEO. RIDDELL, Toronto.

ANOTHER SOLUTION OF II.



II. Let AB be trisected at D and E . Join CD and CE . Then

$$AC^2 + CE^2 = 2AD^2 + 2CD^2,$$

$$\therefore CD^2 = \frac{AC^2}{2} + \frac{CE^2}{2} - AD^2. \quad (1)$$

$$CD^2 + BC^2 = 2AD^2 + 2CE^2,$$

$$\therefore CE^2 = \frac{CD^2}{2} + \frac{BC^2}{2} - AD^2 \quad (2)$$

Substituting from (2) in (1),

$$CD^2 = \frac{AC^2}{2} - AD^2 + \frac{CD^2}{4} + \frac{BC^2}{4} - \frac{AD^2}{2},$$

$$\therefore \frac{3CD^2}{4} = \frac{AC^2}{2} - \frac{3AD^2}{2} + \frac{BC^2}{4},$$

$$\therefore \frac{3CD^2}{4} = \frac{AC^2}{2} - \frac{3AD^2}{2} + \frac{9AD^2}{4} - \frac{AC^2}{4},$$

$$\therefore CD^2 = \frac{1}{3} AC^2 + AD^2.$$

VII. $\sin 3A = \cos 2A$, $\therefore 90 - 2A = 3A$,

$$\therefore \cos (90 - 2A) = \cos 3A,$$

$$\therefore 90 - 2A = n \cdot 360^\circ \pm 3A.$$

$$\therefore A = \frac{90 - n \cdot 360^\circ}{2 \pm 3}.$$

Where n is an integer, negative or positive,

$$\text{Put } n = 0 \quad \therefore A = 18^\circ,$$

$$" \quad n = 1 \quad \therefore A = 27^\circ,$$

$$" \quad n = -1 \quad \therefore A = 90^\circ,$$

$$" \quad n = -2 \quad \therefore A = 162^\circ,$$

$$" \quad n = -3 \quad \therefore A = 234^\circ,$$

$$" \quad n = -4 \quad \therefore A = 306^\circ,$$

Since we are to take only those values of A which are positive, and less than 360° .

F. BOULTBEE, Toronto.

IV. (b.) If $a^2 + b^2 + c^2 = 2S^2$, then

$$(S^2 - a^2)(S^2 - b^2) + (S^2 - c^2)(S^2 - a^2) + (S^2 - b^2)(S^2 - c^2)$$

$$\begin{aligned} &= \frac{(b^2 + c^2 - a^2)(a^2 + c^2 - b^2)}{4} + \\ &\quad \frac{(a^2 + b^2 - c^2)(b^2 + c^2 - a^2)}{4} + \\ &\quad \frac{(a^2 + c^2 - b^2)(a^2 + b^2 - c^2)}{4}. \quad (1) \end{aligned}$$

Again, if $a + b + c = 2s$,

$$\begin{aligned} &4s(s - a)(s - b)(s - c) = \\ &\frac{(a + c + b)(c + b - a)(a + c - b)(a + b - c)}{4}. \quad (2) \end{aligned}$$

First, to prove that (2) is a factor of (1).

If $(a + b + c)$ is a factor of (1), then by putting $a + b + c = 0$ in (1), that expression ought to vanish. Upon doing this the expression becomes

$$\frac{4abc^2 + 4acb^2 + 4bca^2}{4} = abc(a + b + c) = 0.$$

$\therefore a + b + c$ is a factor of (1); similarly the other three factors of (2) may be shown to be factors of (1). Hence (2) is a factor of (1).

Next, to prove that (1) = (2).

Since (2) is a factor of (1), we may put (1) = $N \times$ (2) where N is to be found and does not depend upon the factors in (2); thus we can give any values we please to the letters involved.

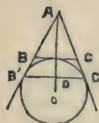
Let $a=0$, $b=1$, $c=2$,

Then $5 \cdot 3 + (-3) \cdot 5 + (-3) \cdot 3 = N(-3 \cdot 3)$,

$$\therefore N=1,$$

and $\therefore (1)=(2)$.

VIII. Let ABC be a triangle; and let a circle, whose centre is O , touch its side BC and the sides AB , AC produced at B' and C' . Required to find chord $B'C'$. Join AO ; then AO can be shewn to bisect $B'C'$ at right



angles. Also, AB' is equal to the semiperimeter of the triangle ABC . Let s denote this semiperimeter.

Then $B'D = AB' \sin \frac{A}{2}$, because AO bisects angle A ,

$$\therefore B'D = s \sin \frac{A}{2},$$

$$\text{wherefore } B'C' = 2s \sin \frac{A}{2}.$$

E. HAGARTY, Toronto.

PROBLEMS.

BY DAVID FORSYTH, B.A., MATHEMATICAL MASTER, BERLIN HIGH SCHOOL.

28. In AB , one side of a $\triangle ABC$, any point D is taken. BC is produced to E so that rectangle BE , $EC =$ rectangle AB , BD . Shew that $\angle ACD = \angle AED$.

29. In the fig. of Prop. 47, Bk. I., join GH , KE , FD and AE . Shew that 4 times $\triangle ADE =$ whole fig. $= \frac{1}{2}$ sum of squares on sides of $\triangle ADE$. (Bks. I. and II.)

30. One circle touches another internally at point A . Describe an isosceles $\triangle$ about the smaller circle such that the vertex and one side shall lie on common tangent, and another angular point on circumference of larger circle.

31. I buy stock at a certain rate discount, and sell at same rate premium, brokerage being $\frac{1}{2}\%$ in each case. Find selling price of stock in order that $28\frac{1}{2}\%$ may be gained on money invested.

32. Three men, A , B , C , labour at a piece of work by turns of one day each. It is found that the time occupied will be 14, $13\frac{1}{2}$ or 13 days, according as A , B or C does the first

day's work. How long would each take to do same amount of work?

33. A , B , C start at a given place to travel round an island 120 miles in circumference. A 's rate is $5\frac{1}{2}$ miles a day; B 's, $17\frac{1}{2}$; C 's, $29\frac{1}{2}$; in what time will they all be together again?

34. Solve $= nx^4 - 14x^3 + 71x^2 - 154x + 120 = 0$; having given that roots are in arithmetical progression.

35. If $e = \sqrt[2y]{1+x}$, then $x = 1 + 2y + 2y^2 + \frac{4}{3}y^3 + \frac{8}{5}y^4 + \frac{4}{5}y^5 + \dots$

36. If $1 = x(x-a) = y(y-b)$, and $4 = a^2 + b^2 + c^2 - abc$, find value of c in terms of x and y .

37. If the H. C. D. of $a^4 + 2a^2b + 2ac + d$, and $a^3 + ab + c$, be a quadratic factor but not a complete square, then the expression, $a^4 + 2a^2b + 2ac + d$, must be a complete square.

38. If $a + b + c = a^2 + b^2 + c^2 = a^3 + b^3 + c^3 = n$, then $abc = \frac{1}{3}(n^3 - 3n^2 + 2n)$.

$$\frac{1}{1^n} + \frac{1}{3^n} + \frac{1}{5^n} + \&c., \text{ ad inf.}$$

39. Shew that

$$\frac{1}{2^n} + \frac{1}{4^n} + \frac{1}{6^n} + \&c., \text{ ad inf.}$$

$$n + \frac{n(n-1)}{2} + \frac{n(n-1)(n-2)}{3} + \dots + \frac{n(n-1)}{2} + 1$$

UNIVERSITY OF TORONTO EXAMINATIONS,
1879.

Honor Problems.

Examiners—Charles Carpmel, M.A.; A. K. Blackadar, B.A.

1. The sides AB , AC of the triangle ABC are produced to D and E , DE is parallel to BC and the triangle DEB is double the triangle ACB ; prove that AB is equal to BD .

2. A common tangent to two intersecting circles subtends supplementary angles at the points of intersection.

3. If two circles cut each other at right angles, the line passing through their centres is divided harmonically by the circles.

4. Prove, $x_1 + x_2(1-x_1) + x_3(1-x_1)(1-x_1) + x_4(1-x_1)(1-x_2)(1-x_3) + \dots + n$ terms.

$\equiv 1 - (1-x_1)(1-x_2)(1-x_3) \dots n$ factors.

V. If the 1st of March be called the first day of the year, shew that if the p th day of the q th month be the n th day of the year,

$$n = 30q - 1 + p + r$$

where r is the greatest integer in $\frac{5q+4}{12}$.

VI. If p , q , and r be three consecutive primes to 3, prove that

$$p(p-2q) - r(r-2q) = \pm 3,$$

the upper or lower sign being taken according as q exceeds p by 2 or 1.

VII. If $\frac{1}{1-2rx+x^2} \equiv 1 + b_1x + b_2x^2 + \dots$

$$b_n x^n + \dots \text{prove that } b_{n+1} - b_{n-1} = b_n^2 - 1.$$

VIII. Shew that the sum of the series,

$$\begin{aligned} & \frac{n+1}{n-r-\rho} \frac{n+1}{r+\rho+1} + \dots \frac{n-r-\rho+1}{r+\rho} + \dots \\ & \dots + \frac{r}{s} \frac{n+1}{n-r-\rho+s} \frac{n+1}{r+\rho-s+1} + \dots \\ & = \frac{n+r+1}{r+\rho+1} \frac{n-\rho}{n-\rho} \end{aligned}$$

IX. Solve the equation $(x-3)(x-9)(x-11)(x-17)$.

$$= (x-8)(x-14)(x-16)(x-22).$$

X. $x + y + z = 11$

$$xy + yz + zx = 36$$

$$yz = 3x(z-y).$$

One solution is $x=2$, $y=3$, $z=6$; find all the other solutions.

II. Prove that $\sin 60^\circ = 4 \sin 20^\circ \sin 40^\circ \sin 80^\circ$.

XII. Eliminate θ between the equations.

$$m = \operatorname{cosec} \theta - \sin \theta$$

$$n = \sec \theta \cos \theta.$$

XIII. In any triangle, prove that

$$\tan^2 \frac{A}{2} + \tan^2 \frac{B}{2} + \tan^2 \frac{C}{2}$$

$$= \frac{1}{3} \left\{ \left(\frac{a}{\sin A} \right)^2 + \left(\frac{b}{\sin B} \right)^2 + \left(\frac{c}{\sin C} \right)^2 \right\}$$

$$\left\{ \left(\frac{\sin^2 \frac{A}{2}}{\frac{a}{2}} \right)^2 + \left(\frac{\sin^2 \frac{B}{2}}{\frac{b}{2}} \right)^2 + \left(\frac{\sin^2 \frac{C}{2}}{\frac{c}{2}} \right)^2 \right\}$$

XIV. The circumference of a circle whose radius is a is divided into n points, each of which subtends the same angle at a point O within the circle. If $CO = b$ and $r_1, r_2, \dots, r_n$, be the lines from O to the points of division, shew that

$$r_1 + r_2 + \dots + r_n = (a^2 - b^2)$$

$$\left(\frac{1}{r_1} + \frac{1}{r_2} + \dots + \frac{1}{r_n} \right)$$

XV. A circle is inscribed in a triangle, and a second triangle is formed whose sides are equal to the distance of the points of contact from the angles of the triangle; if r be the radius of the circle inscribed in the first triangle, and p, p^1 , the radii of the inscribed and circumscribed circles of the second triangle, then will $\frac{1}{2} r^2 = p p^1$.

16. The squares of the tangents from any point to a parabola are to one another as the focal distances of the points of contact.

17. S and H are foci, and C the centre of an ellipse. SM, HN are perpendiculars on the normal at P ; prove that $CM = CN = \frac{1}{2} (SP \sim HP)$.

Also, find the polar equation to the locus of N .

18. A triangle is escribed about a parabola; prove that the area of the triangle whose vertices are the points of contact is double that of the escribed triangle.

19. The equation of a circle in which $(x_1, y_1), (x_2, y_2)$ are ends of the chord of a segment containing an angle θ , is

$$(x-x_1)(x-x_2) + (y-y_1)(y-y_2)$$

$$\pm \cot \theta \{ (x-x_1)(y-y_2) - (x-x_2)(y-y_1) \} = 0.$$

20. A parallelogram is described about an ellipse; if two of its angular points lie on the directrices, the other two lie on its auxiliary circle.

CONTRIBUTORS' DEPARTMENT.

"CRAM."

It seems as if, nowadays, you can get people to take sides on any question whatever, and so every question becomes a school-boy's debate. Now, one of the most hopeless symptoms that one of these little debates can take is, when one of the parties, on his own responsibility, divides the meaning of the chief word in the question, making one half to serve his own side, and leaving the other to his opponent. This is what they have done with the word "cram." I do not know who introduced the word, or what exact meaning is attached to it, but it strikes me as a somewhat vigorous slang expression, involving the idea of "too much" in it. Turkeys and chickens are crammed, and Nature is outraged in the process; if a bag or box be crammed with anything, we do not expect to get much more into it; if a learner crams, he puts more into his head in a short time than prudence can approve,—his memory is overloaded. If the learner be very young, cramming must mean the same thing. Professor Jevons has fallen into the error of dividing the meaning of "cram" into good and bad, and others have followed him. If the word is to be of any real use, let it have a definite meaning. As well might one, in discussing the question as to whether "Virtue is desirable" say, "From my point of view, No; for virtue may be of two kinds, good and bad." So we have "good cram" and "bad cram." If it be thus divided, discussion is at an end, for who would have the courage to object to that marvellous thing "Good Cram," and rightly enough, for it only means acquiring knowledge in a hurry for some definite object. Then, it is said that the good teacher "crams," and the good lawyer "crams," and the good preacher "crams." Now I do not think so, though the bad ones may. If the teacher crams, his

health will suffer, and his pupils will be little benefited; if the preacher crams, his congregation will yawn; if the lawyer crams, his clients will suffer; for, we cannot call the process of getting a rapid outline of a subject "cramming," because that is incidental to the profession, and I cannot conceive of people cramming as a profession. Even poultry are only crammed for a short period, and not habitually through their natural life. Now, reviewing a subject before an examination, after having studied it during a term, is *not* "cramming," good or bad; but requiring as much work to be done in three months as a growing, immature child—not a hard-headed lawyer—would require a year safely to master, *is* "cramming"—good and bad. A mature mind, whether it be that of teacher, or preacher, or lawyer, may perhaps do a little cramming, without much injury; a child cramming will feel the effect in his grey hairs, if he ever reach the age of them. Let us call study, "study," and cram, "cram."

A. B.

SPELLING REFORM.

Editor, Canada Educational Monthly:—

SIR,—A cursory glance over your first item under Editorial Notes in the MONTHLY for April, would lead one to imagine that you branded, indiscriminately, all who wish "to remove from the language its most glaring inconsistencies" in spelling—as "sciolists and tinkers," yet I can hardly believe that such is your deliberate opinion. Your whole article bears the stamp of desperate resistance to the reform, without advancing one argument in support of your views. It begins, continues and ends in an acrimonious tone of literary declamation against all who, prompted by philanthropic motives, wish to amend our barbarous spelling—orthography is a misnomer.

You brand such men as Dr. J. H. Gladstone, Prof. Max Müller, Prof. Whitney, Prof. A. J. Ellis, and other equally profound scholars, "sciolists!" Surely these names cannot have occurred to you at the time or you would not have used the word; especially when you, a few lines below, admit the rationality of some of their arguments, and also that "to this end we would go some length in meeting the reformers of our language," and "we should be prepared to entertain proposals to alter the form or extend the number of letters." Now when you admit that the reasons for phonetic spelling are "rational," and that you would welcome new letters, what form do your reasons for rejecting the reformation assume? You would mutilate *partially* not *wholly*; yet others who would do the same you contemptuously designate "sciolists and tinkers." Your objection is levelled at the *extent*, not the *principle*, of the reform which is desired. An inherent conservatism seems to be the motive prompting your opposition.

In the March MONTHLY you promised some arguments against the reform: let us have them, or the statement of your opinions and the opinions themselves will with difficulty be reconciled.

If you attempt the defence of your present spelling you will probably find yourself involved in a labyrinth of such gross absurdities that you will find it difficult to extricate yourself. Declamation against spelling reformers is not argument; and you should feel delicate about applying opprobrious epithets to men whose side of the question may be better than your own. I notice, however, that the opponents of phonetic spelling usually adopt that style of treating the matter; in fact they can adopt no other, as arguments and facts are so directly against them that they must either use that style or abandon the contest. I would like to hear the arguments against the reform, and am open to conviction, if wrong; but I must be convinced by sound arguments before I admit that spelling reformers are "sciolists or tinkers."

T. JNO. GODFREY.

Scotland, Ont., 7th May, 1879.

—Our correspondent unnecessarily expends a good deal of vital force in challenging our remarks of last month on the "Spelling Reform" movement, of which, manifestly, he is a valiant, if not chivalrous, defender. With all the rash enthusiasm of a presumed recent convert, he girds at us in no measured words, and impatiently clamours for our arguments. In good time, if our friend will be considerate, he will have our arguments; but in the meantime our critic had better see that he has utterly misread the "note" which has so exercised him, and misapplied our term, "sciolists and tinkers," to those to whom we had no intention of applying it. Manifestly, we are not in sympathy with the agitation for a reform; but the inconsistencies of English spelling are not ignored the while, nor are we indifferent to intelligent, if even impossible, proposals to remove them. What we are concerned about is this, that however "barbarous" our present spelling may be, it shall be saved from becoming more "barbarous" in the hands of those whose "tinkering" with it can only be a desecration. The wisdom of any change is doubtful; but the wisdom of allowing the language to be chopped beyond recognition by men who are ignorant of its history, structure, and derivation, is not wisdom, but unwisdom; and it is against such revolutionary acts that we uttered our protest of last month which has been so misconceived by our correspondent. In this democratic age we can scarcely prevent anyone who so wishes from "spelling as he speaks;" but to accommodate English orthography to the vagaries of such people is a presumptuous demand, even if it were possible to adapt it to the provincialisms and dialects that, as the language is now written, sufficiently distort the mother-tongue. The pleas in favour of a reform in spelling, we are aware, are nevertheless, many and weighty; but in England, at any rate, any practical attempt at innovation has failed to be influential. This is significant. Moreover, the principal English School Boards, outside of the London one, where Drs. Gladstone and Angus have been agitating the

reform, have largely refused to support, or even to countenance, a change. This, of course, may be British conservatism, but it is also English common-sense, and it would be odd if it were otherwise; for if the outcome of our civilization and of centuries of educational effort were to culminate in any such scheme as most of the Spelling reformers have in view, it would be a grim satire upon the past.—EDITOR C.E.M.

SCHOOL-BOOK EDITING AND AUTHORSHIP.

TORONTO, 29th April, 1879.

Editor, Canada Educational Monthly:—

SIR,—My attention has been called to a passage in the April number of the MONTHLY, which is fitted to convey an erroneous impression. You speak of the Chairman of the Central Committee as “contributing to a work which subsequently must have come before him for judicial appraisement, prior to official authorization.” I did not contribute either to this work or to any other on the authorized list. Mr. Kirkland’s statement, that he is indebted to me “for the excellent collection of examination papers in ch. xii,” must not be understood as if I had furnished these papers to Mr. Kirkland. He found them in public documents. I undoubtedly made some suggestions to Mr. Kirkland when he shewed me his manuscript; but, to represent me as having “contributed” to the work, is putting the matter in an entirely false light. I should probably have withheld even my suggestions, had it occurred to me that the work might be submitted to the Central Committee for their opinion. I, of course never had any pecuniary interest in the work.

I am, Sir,

Your obedient servant,

GEORGE PAXTON YOUNG.

—We readily give insertion to the above communication of Prof. Young disclaiming

having “contributed” to Mr. Kirkland’s *Elementary Statics*, and thus, inferentially, freeing himself from the impropriety to which we alluded in his connection with the work, prior to its authorization, in our article of last month on “School Book Editing and Authorship.” It will be seen, however, that the Professor’s disclaimer is more a metaphysical than a practical one, as, though he objects to the word “contributed,” he admits having given the author “suggestions” in the preparation of the work, which, in the relation he was afterwards to stand towards the book, was no less an impropriety than if he had given it the aid of a substantial contribution. That we were wrong in using the term “contributed” was not our fault, but Mr. Kirkland’s, as no one reading that gentleman’s acknowledgment of Prof. Young’s assistance could fail to come to the conclusion that the Professor had really made a contribution to the work. If the “excellent collection of examination papers” was made by Mr. Kirkland, and not contributed by Prof. Young,—and we now know this to have been the case—it is unfortunate that Mr. Kirkland did not put his acknowledgment of Prof. Young’s services in a less ambiguous form. But, as we have said, this Mr. Kirkland is responsible for, and not the present writer; and Prof. Young has had ample time since the publication of the book, to draw the author’s attention to the misleading acknowledgment, and to have had it either altered or withdrawn. Though we are not blamable in the matter which Prof. Young complains of, we much regret the circumstances which called for our censure. The intrigues of the Central Committee with publishing houses, however, have been too much of a scandal of late for the critic to deal tenderly with breaches of propriety and acts that discredit officials, with the performance of their duties, though in Prof. Young’s case there would seem to be less to hold him responsible for than in the case of some of his confreres.—ED. C.E.M.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

CONVOCATION ADDRESSES AT CANADIAN UNIVERSITIES.

The closing proceedings at Convocation in three of our Canadian Universities furnish excellent material this month to fill the department of "Contemporary Opinion." Whatever the activities of thought in the motherland, some of the results of which have been presented in this department in previous numbers, it is gratifying to know that we have in Canada, in connection with our highest Educational Institutions, writers and thinkers, whose words are weighty enough to entitle them to preservation in our pages, and the reproduction of which may be of important service to the youth of the Dominion. From the reports of the recent Convocation addresses at Queen's, McGill, and Victoria Universities, we extract the following, which we doubt not will be read with interest and profit, and bear testimony to the mental calibre of the men engaged in university teaching in Canada, and be an evidence of the aims and character of their work.

QUEEN'S UNIVERSITY, KINGSTON.

Principal Grant, addressing the graduates, congratulated them on the dignity of membership of Queen's University. Having referred to the fact that their education was not completed; that their university training had simply given them the spirit of students and habits of study; he proceeded as follows:—

"Each of you has probably learned already to some extent that to know himself he must know God, and that according to this knowledge of God is his theory of the universe. To be assured that you stand on firm ground here is your first necessity. All roads lead to Rome. All subjects lead to theology. Very few of you intend to study the special science of theology, but every thinking man must be

a theologian. He must have a theory with regard to the great questions that lie at the root of all thought and all interests. And his scheme of the universe must be true to all the facts of the universe so far as he knows them. This at his peril. Having got your *credo* you will find that it has got you. It will dominate your whole life. Let this be the test of whether you believe or whether you are only highly educated parrots. According to your moral earnestness you will necessarily commend to others that which is the highest truth to you. Agnostics beseech us to abandon the Christian hope for their dogged "don't know," with assured confidence that a blank is more precious than a prize. One of them has declared that Christianity must eventually be stamped out like the cattle plague; religion is pernicious and religion is infectious. Therefore the good of society demands that it be crushed out. I do not wonder at this intensity. No one will wonder at it who has read history and understands human nature. Even pessimists press their message of despair on men as if it were a veritable gospel. Give us truth is the cry of the soul. And what men believe to be truth they will urge upon others—some wisely, others unwisely. No matter what your profession, you will preach to your fellows by voice, or pen, or life. Not from the pulpit chiefly have the most far-reaching voices sounded forth to this generation bidding men walk in the paths of hope and faith, or bidding them abandon the old gospel for the gospel of dirt. Statesmen from Bunsen to Gladstone, poets from Wordsworth to Tennyson, men of science from Faraday to Tait, literary men from Carlyle to George McDonald, philosophers like Jas. Martineau and Max Muller—these and a thousand others have been preaching sermons all the more influential that they are based on life rather than on texts. In searching for sure ground on which to stand, have regard to the spirit of the ages rather than to the spirit of the age. We are the children of this age and must be in sympathy with it, not in bondage to it, for we are the heirs of all the ages. The fashion of the day is tyrannous, but you prove your strength by resisting the tyrant. Correct the one-sidedness of the past. Respect facts rather than the glittering generalizations of any writer. Respect the verdict of

history rather than the paradox of the historian. When, for example, Buckle classes Scotland and Spain together as the two most priest-ridden countries in Europe, ask why the outcome of the riding was so different in the two cases, and you will conclude that brambles and fig trees are not the same, and that it serves no useful purpose to classify them as if they were. As to what the spirit of your age is, men may differ widely in their judgment. That judgment will differ according to the induction they make. May we not venture to say that this age is above everything also critical. We hear of the modern criticism, of its achievements and claims in every department. Undoubtedly criticism has its value, but if this be the chief characteristic of our age, it cannot take the highest place and it is all the more incumbent on us not to be its captives, but its masters. Merely destructive criticism is especially worth little. Niebuhr did not abolish the myths of Greek and Roman history. He interpreted them as expressing larger historical movements than our fathers had learned from the simple stories. And in the same spirit Ewald seeks to construct early Hebrew history. But the importance of this historical criticism has been greatly overrated. I have a good deal of sympathy with the remark of Goethe about its value. "Till lately," he says, "the world believed in the heroism of Lucretia, of a Mucius Scaevola, and suffered itself by this belief to be warmed and inspired. But now comes your historical criticism, and says that those persons never lived, but are to be regarded as fables and fictions, divined by the great mind of the Romans. What are we to do with so pitiful a truth? If the Romans were great enough to invent such stories we should at least be great enough to believe them." Criticism is valuable. It has its legitimate fields and its legitimate claims. Whether we accept its results or not, we must not interfere with its work, but aim at being something more than critics. Do something. And in order that you may do, believe. All the past ages teach us the importance of this. Rejoice in the triumphs of the present as much as you will. Cherish heroic hopes with regard to the future. But be well assured, as Goethe again says, that "let mental culture go on advancing, let the natural sciences go on gaining in depth and breadth, and the human mind expand as it may, it will never go beyond the elevation and moral culture of Christianity as it glitters and shines forth in the Gospel." Take your stand on the person of Christ and the supreme fact revealed by Him of the Fatherhood of God. The more you trust it the more convincingly it will shine. Depend

upon it that fact is much grander and more life-giving, while it is not one whit more anthropomorphic than Strauss' *Universum*. Again, in your future studies you can now afford to give your strength to some special department, and in taking up this specialty, whatever it may be, never be satisfied unless you get to sources. That is a much shorter method than taking things at second or third hand, and until you have followed it, you have no right to consider yourself a scholar or entitled to speak above your breath. On account of the training given in the German gymnasias, the universities are able to set their students at independent work to a far greater extent than is possible in Britain or America. In every German university it is the aim to set as many students as possible at such work, whether it be to collate a root not yet illustrated, or to experiment in the laboratory with substances hitherto considered elementary, or to count shells never before counted, or to trace a doctrine not yet historically described. As a friend of mine studying in Germany put it, "We are told to find some bit of ground undug and to go at it with our might and tell the world what our spade has brought to the surface." It is this independent study that constitutes the superiority of German scholarship, and nothing contributes so much to it as the thoroughness of the intermediate education. Our Canadian High Schools and Collegiate Institutes are improving so rapidly that we are warranted in hoping that before long much of the work may be done in them that is now done in our universities, and the universities be free to advance beyond the work where a halt is now called. In the meantime, perfect your knowledge, as far as you can in some special department, instead of fancying that your education is finished. Again, be not too eager to attract the world's attention. Every true man is modest. I do not wonder that Bismarck groans over "the eternal talking and begging" that he has had to do. It may seem inconsistent that one whose profession is to teach and preach, and who has had to press upon others the cry of "give, give," as often as the horse leech, should sing the praises of silence and recommend it to others. It is like Carlyle extolling the excellence of silence in volume after volume, or in an eloquent address of one hour and three-quarters long to the students of Edinburgh. Nevertheless Carlyle is right. If you would not deceive yourselves—and that is the deadliest form of deceit—let brave deeds always follow close on brave words. If you cannot do the deed, keep silent. Mere talk will infallibly make you spiritually bankrupt. You may mistake flabbiness for strength. Others will not. Doubtless a word spoken in season is

good. A word is, but not the empty phrases and small verbosity with which the present generation is so sadly afflicted. Cultivate then your gift of silence if you have it, and if you have it not, seek for it earnestly."

MCGILL COLLEGE, MONTREAL.

The proceedings of this institution opened with an interesting historical and statistical address from the Principal, Dr. J. W. Dawson, who stated that the number of students in the McGill College, in the session just closed, was 419; and in the affiliated Colleges of Morin, Quebec and St. Francis, Richmond, 55, or 474 in all. The number of degrees in Course conferred at the two meetings of Convocation was 74, and it is to be observed in the present year that no graduates present themselves in Applied Science, in consequence of the Course in that Faculty being extended to four years. After some further remarks from the learned gentleman, the Professor of History and English Literature, Professor Moyse, addressed the graduates in the following words:—

"In the short time at my disposal to-day, I propose to make a few remarks on the latest extensions of University work in England, and to discuss the applicability of some of those extensions to the furtherance of higher education in Canada. I speak of England, because it is evident, at a glance, that Canada imitates and wishes to imitate English methods of teaching in preference to those of the United States. Quite within the memory of the present generation the Universities of Oxford and Cambridge stood isolated, as it were, from the progressive intellectual life of the nation. They were recognized everywhere as institutions whose very age entitled them to reverence; recognized, too, as embodying all that was highest in "culture and scholarship." But a vast section of the teaching power of England viewed them from afar, considering them simply as feeders of the Church and the few large public schools, or as a convenient, not to say fashionable, resort for the sons of the noble and the wealthy. In short, with broad scholastic work they had little to do. Yet, that work had been growing apace and its fruits were claiming acknowledgment at worthy hands. Men who were able to forecast the educational future of the great middle class saw that the old Universities could do a great and noble work by stepping for-

ward to meet the wants of schools whose curriculum implied more than a smattering of the subjects they taught. Bishop Temple and Oxford led the way, and Cambridge soon followed in their steps. Their overtures were welcome for they were opportune. Give us, said the schoolmasters, give us a scheme of school work, examine our boys in that work, and those who have acquitted themselves creditably, send into the world with your testimony that they have attained some degree of proficiency in the subjects you have selected. This was done, and the result was evident from the first; it may be summed up in one word, *success*. To-day the whole of England is thickly dotted with examination centres, and from the Land's End to Berwick there is scarcely a school of repute which does not present every year some of its brightest lads at the Oxford and Cambridge Locals, as they are familiarly called. So rapidly has this wise and great movement progressed that last year not less than one thousand six hundred and seventy boys and six hundred and thirty girls were examined by Oxford, and three thousand and two boys and one thousand six hundred and seventy-nine girls by Cambridge. The good which these examinations have done to the early education of young England is incalculable, the objections which might be made to them in that they lead to cramming, and to an implicit reliance on that educational bug-bear, the text-book, are far outweighed by the thoroughness of the instruction as compared with the teaching in vogue when England was entrusting the children of the poorer classes to the hands of a Squeers, whose picture, as drawn by our great novelist, is not a caricature but a likeness. Now it is this part of the field of education which I believe can be worked with great success by Canada. Here, as in England, we a University, should be constantly checking our own work and playing our important part in the reflex action which is the vital principle of the scheme. We should in every possible way be kept abreast with the times, should foster to the utmost of our power those local centres, of recent establishment it is true, but still of much promise; should welcome the men who demand an opportunity of showing the results of their teaching, remembering that they are in many cases seniors of the University doing their best to present to their *Alma Mater* for her commendation those, in many instances, likely to follow the career of their first instructors. But the parallelism between the Mother Country and the Dominion does not end here; in both the higher education of women has come, or is coming, to the front. No longer is the censure of Slade in the *Spectator* true. There he tells

the English that the general mistake they make in educating their children is that in their daughters they take care of their persons and neglect their minds; in their sons they are so intent upon adorning their minds that they wholly neglect their bodies. No longer is it time for the University of London, called into existence by the sectarian narrowness of Oxford and Cambridge—narrowness so abiding that but ten years have elapsed since Cambridge fellowships were bestowed upon Dissenters—the University of London set on foot examinations for women whose aim was to promote a thorough knowledge of such subjects as were taught in the best schools, and she awarded special certificates of higher proficiency to those who passed a subsequent and more difficult examination in specified branches of learning. Cambridge has done a similar thing. She has established throughout the land higher examinations whose specialities are some guarantee of thoroughness, has erected almost under the shades of her colleges, institutions, Girton and Merton, where her professors teach ladies the advanced parts of the subjects likely to be of use to them in after-life, and has found that when the best lady-students were submitted to the mathematical *scipos* examinations, some of them would have borne the distinguished title of *wrangler* had they been admitted to degrees in Arts. I must not omit to mention the memorable and stormy debate in the London University Convocation of April, 1878, when a large majority declared themselves in favour of throwing open the courses of the University to women. Consequent upon this University-College announced her intention of establishing mixed classes in the subjects required for the London degree, and this step has been crowned with extraordinary success. I believe that the McGill University has just taken an interest in this branch of education, and has framed a scheme akin to the germs of those I have been mentioning. Whether development will ensue here, remains to be seen, but many of our efforts will be paralysed unless centres of instruction are established where the specified subjects are rightly taught. If we trust to candidates preparing themselves privately we may be doing well, but we might do better. There is just one cause for anxiety in regard to the educational future of Canada—the multiplication of Universities. It will be no happy day when the Canadians, like the Americans, persuade themselves that one swallow makes a summer or in other words that one eminent man makes a University. England, with all her intellectual wealth, is loath to have even one new University established in her midst. It was only the other day

that the Owens' College, Manchester, a provincial institution second to none in England, asserted that she was entitled to be raised to the rank of Oxford and Cambridge and London. Her patrons pointed with pride to her magnificent buildings, her wealth of apparatus, her highly competent staff of Professors, almost every one of whom has attained European eminence. They argued that Owens was fully able to impart the highest instruction and to grant degrees to her deserving students. But the thinking part of the nation looked with disfavour on the scheme. Leeds, Sheffield, Birmingham at once protested and said they had Colleges which would soon become what Owens then was; that to favour Manchester would be to do them an injustice. Let us, they said, let us join to found a Northern University. Yet valid objections to this are easily found. Unless Universities are absolutely needed, university rivalry is carried on at the expense of brains on the part of over-worked students. Indeed, I think I am right in saying that Owens openly avowed an intention of fixing a standard higher than that of London. Again, of many Universities some soon fall into the background, soon become enervated and produce from time to time batches of very indifferent graduates. Did I need any confirmation of the misery likely to ensue from superfluous Universities, I should find it in the outcry now being raised against the many institutions granting diplomas in medicine and surgery, diplomas very different in value. There is scarcely a medical man of note in England who has not pronounced himself in favour of amalgamation and of a uniform standard; but "vested interests" stand in the way of achievement. And thus the boon, which worthy medical students would gladly hail, is as yet denied to them. Canadian legislation, too, seems to be firmly impressed with the idea that the fruits of medical science should be fettered by such things as Provincial boundaries, and that rivers and mountain-chains should be all-availing obstacles to him who desires to profit by and to practise the ripest knowledge of the times. I am tempted to say just a word concerning sectarian Universities. In England they have had their day. It is a matter of congratulation that the English mind at last sees that sectarianism has no element of universality about it, no right to found for itself a University. The judgment of thoughtful Englishmen has declared of the sectarian Colleges, which must of necessity exist, and which are entitled to much respect, that only such subjects as can be said to belong to them in common are fit matter for Universities to enforce on all alike. A word to the

graduates of to-day, and I have done. Gentlemen, from the time when you entered on your courses of study at McGill you have looked forward to this occasion as the crowning of all your hopes. I can easily imagine the feelings with which you regard the future. The world seems at your very feet, and you ask yourselves what more you can do now that the goal of your ambition has been reached. You will, however, find that world hard to overcome, and the goal but a passing illusion. When the realities of life face you in sober earnest you will learn that the relation in which you stood to McGill was not one-sided, that you were not her passive victims released on a happy day of triumph. Do not believe that the sentiment I heard expressed by one of you when he had finished his ex-aminational work is a true one. "He had written the last pen-stroke for McGill," he said. Nay, rather, should it have been *in* McGill. You must, indeed, be wanting in gratitude if you look upon this University as a mental torture-house from which you have at length escaped. Your education is but just begun, believe me; it should end only with your lives. The University will expect you to maintain her fair fame, and, wherever you may be placed, she believes that some of you will not forget this, but will remember to repay her care by good honest work—work which she may at no distant day herself take in hand and make as honourable and honoured as that which you have just wrought. What you are destined to become is, in some measure, due to the training you have received within these walls. And the aim of that training should have been not to cram into you during four short years a large portion of the sum-total of human knowledge, not to make those men who cared little for books mere mechanical readers for the rest of their lives; its aim should have been to make you *think* and *think rightly*; to make you discern the value of that sweetness and light we have heard so much about of late years; in short, to give you a keen apprecia-

tion of the golden worth of culture. And perhaps I shall not be wrong if I affirm that you will re-echo the words of a man whose mind was eminently healthy, of a man who did his full share of life's toil, of a man whose character needs no meed of praise—I speak of Sir Walter Scott—and that you will tell the graduating class of 1880, as you leave them, how much you feel the truth of his sentiments when he speaks of his University career in words like these:—"If it should ever fall to the lot of youth to peruse these pages, let such a reader remember that it is with the deepest regret that I recollect in my manhood the opportunities of learning which I neglected in my youth; that, through every part of my literary career, I have felt pinched and hampered by my own ignorance, and that I would at this moment give half the reputation I have had the good fortune to acquire, if, by doing so, I could rest the remaining part upon a sound foundation of learning and science."

VICTORIA UNIVERSITY, COBOURG.

The annual closing exercises of Victoria College, extending over three days, May 18th to 20th, were of a varied and unusually interesting character, the proceedings throughout being highly gratifying to the friends of the Institution. We had hoped to have given some information regarding the achievements of the university during the past academical year, and to have transferred to our columns the address of the learned principal, Dr. S. S. Nelles, to the graduating class of the college, but we find our space unfortunately forbids the extension of this department, in the present number, and we must defer the publication of the latter until another issue.

CONTEMPORARY LITERATURE.

EDUCATION AS A SCIENCE. By Alex. Bain, LL.D. (Volume 25, International Science Series). London: C. Kegan Paul & Co.; Toronto: James Campbell & Son; also, New York: D. Appleton & Co.; Toronto: Hart & Rawlinson and A. Piddington. (*First Notice.*)

No book has been more eagerly anticipated by the teaching profession than this one since the announcement of it was made some few months ago. There has hitherto been no systematic effort made to bring the various functions of the schoolmaster's art under the domain of science. It is true that the scientific aspects of education have received the attention of thinkers from the time of Plato and Aristotle down, but only in a desultory way. As practised in the school-room, it has not had that specific attention given to it to justify its being called a science at all. Herbert Spencer made some attempt to treat education as a science, but his chapters on the subject are little more than fragmentary and do not claim to be exhaustive. They are so good, however, that we cannot but regret that one so gifted and so competent should rest content with being a mere contributor to the science instead of being its organizer. Mr. Bain, the well known Professor of Logic in Aberdeen University, and the author of several educational works on Grammar, undertakes in the volume before us to treat of the subject in a systematic manner, and on a scientific basis. Though it is one of a series, the *International*, to which many authors contribute, it bears evidence of long-continued thought and observation, and no one can deny that it is the fruit of ripe experience and judgment, and of a thoroughly trained scientific intellect.

In his first chapter on the "Scope of the Science of Education," though he is quite

liberal in quoting definitions of education from other sources, he fails to supply us with one of his own; this is certainly somewhat unpromising, and not a very scientific way of beginning his subject. In this chapter, too, we are startled with the announcement that "the leading inquiry in the art of education is how to strengthen memory" (p. 8). Now the general consensus of opinion is, that the leading inquiry in education is how to strengthen the reasoning faculties so that they may employ what memory, their handmaid, supplies; and it will take greater authority than that of Mr. Bain to restore memory to the bad eminence it once occupied. Let us see what other leading thinkers have to state on this subject. Locke says in his essay on "The Conduct of the Understanding:" "The business of education is not to make the young perfect in any one of the sciences, but so to dispose and open the minds of the young as may best make them capable of any intellectual effort when they apply themselves to it. Reading furnishes the mind only with the materials of knowledge; it is thinking makes what we read ours. The memory may be stored, but the judgment is little better, and the stock of knowledge not increased by being able to repeat what others have said, or produce the arguments we have found in them." John Stuart Mill thus expresses himself in his "Dissertations and Discussions:" "The object of education is to qualify the pupil for judging what is true or what is right, not to provide that he shall think true what we think true, and right what we think right—to make him a thinker or an enquirer, not a disciple." And Herbert Spencer says in the book we have already referred to: "Education should consist more in *training* than in *telling*. What the learner discovers for him-

self by mental exercise is better known than what is told him." Mr. Bain is like a racer which makes a very awkward start but afterwards does some excellent running. In the next chapter, for instance, devoted to the "Bearings of Psychology," he is fairly into his work, and says much that is instructive. He defines the three great functions of the intellect to be discrimination, agreement and retentiveness, and, of course, gives prominence to the latter. He lays stress upon the necessity of repetition to make perfect; enjoins morning for the severer subjects of study; and thinks that mental activity is much greater in winter than in summer. "Summer studies," he says, "are comparatively unproductive" (p. 26). We doubt whether this assertion will receive universal assent. He thus expresses himself as to the future substitutes for corporal punishment: "It is in graduated artificial inflictions, operating directly on the nerves, by means of electricity, that we may look for the physical punishments of the future that are to displace floggings and muscular torture" (p. 62). He rightly holds loss of temper on the teacher's part, however excusable, to be really a victory for wrong-doers, but indignation under control is a mighty weapon. "That quietness of manner that comes not of feebleness but of restraint, and collectedness, passing easily into energy when required, is a valuable adjunct to discipline. To be fussy and flurried is to infect the class with the same qualities; unfavourable alike to repression and to learning" (p. 110). "It [indignation] supposes the most perfect self-command, and is no more excited than seems befitting the occasion. Mankind would not be contented to see the bench of justice occupied by a calculating machine that turned up a penalty of five pounds, or a month's imprisonment, when certain facts were dropped in at the hopper. A regulated expression of angry feeling is a force in itself" (p. 77).

He very properly condemns mere lecturing to pupils unaccompanied by catechetical drill to make them reproduce what they have heard, and shows a thorough appreciation of

the ability of the instructor who can put just so many facts pointing to a conclusion before a class as will enable the pupils to succeed in reaching it by their own mental efforts. He points out very clearly that the authority delegated to the teacher exists for the benefit of the governed, and not as a prerogative pertaining to the teacher's office; that it is a means, by restricting free agency and thus abating human happiness, of preventing far greater evils than its exercise inflicts. In speaking of the motives that can be employed with children, he shrewdly remarks: "To talk to them about riches, honours, and a good conscience is in vain. A half-holiday is more to them than the prospect of becoming head of a business" (p. 104).

It was the discovery of this disagreeable truth that caused the great and good Dr. Arnold so much searchings of heart about his Rugby boys. In the next paragraph we are told the reason why a disciplinary rule cannot always be made apparent, but if rules were made only when their necessity becomes apparent, the skilful teacher would have less difficulty in enforcing them.

While on this subject Mr. Bain enumerates as important aids to discipline, good physical surroundings, airy and spacious class-rooms, organization, or methodical arrangements: "To these follow the due alternation and remission of work, avoiding fatigue and maintaining the spirits and the energies while the teaching lasts" (p. 109). But with all these he does not anticipate an early millennium for the schoolmaster. "The fear is that till the end of time the sympathy of members will continue to manifest itself against the authority of the school" (p. 111). One of the most unsatisfactory parts of this important chapter is that devoted to prize-giving. We had looked for an utterance of no uncertain sound on this vexed question, but we have read carefully the two pages devoted to an apparent discussion of it without being able to discover what Mr. Bain's opinions upon it are. He is more outspoken upon the matter of corporal punishment; his remarks upon which are worth quoting: "With all these resources ingeniously ap-

plied—emulation, praise, censure, forms of disgrace, confinement, impositions—the necessity for corporal punishment should be nearly done away with. . . . The presence of pupils that are not amenable to such means is a discord and an anomaly, and the direct remedy would consist in removing them to some place where the lower natures are grouped together. Inequality of moral tone is as much to be deprecated in a class as inequality of intellectual advancement. There should be Reformatories, or special institutions, for those that cannot be governed like the majority" (p. 116). Our author is not a full believer in the discipline of consequences as enunciated by Herbert Spencer. He remarks forcibly enough that the results of misconduct may be too serious to be used for discipline, when the want of foresight and foreknowledge in children prevent them from realizing consequences while the evil impulse is upon them. But the sense of consequences may be greatly strengthened by constantly keeping before the minds of the young the direct relation between cause and effect in human action, so well expressed in regard to wrong-doers by the inexorable Bible truth, that if they "sow the wind they must reap the whirl-wind."

The fourth chapter is devoted to the discussion of the terms employed. Although Mr. Bain attaches so much importance to memory for knowledge imparted, he is, in this chapter, quite emphatic in fixing a limit to its improvement, asserting that it cannot be greatly strengthened but at the expense of reason, judgment, and imagination, which is not a desirable result" (p. 121).

He discusses the meanings that are attached to synthesis, analysis, and object lessons, remarking upon the last that the "cultivation of the senses" is a more suitable way to describe them. In distinguishing between information and training, he places under the head of the first, the elementary operations of arithmetic, the definitions and rules of grammar, and historical and geographical facts; while under the head of the latter he places elocution, or voice culture, geometry, or culture in deductive method,

the physical and natural history sciences, or culture in induction and classification, and thus sums up his remarks: "While the mere facts of science turned to account in practical operations are called information, the *method* of science, the systematic construction of it, the power of concatenating and deriving truths from other truths, is treated as something distinct and superior" (p. 129).

In the two following chapters, devoted to "Educational Values," we have not to read far before we find that of the two great branches of human culture—Science and Language—his opinion is decidedly in favour of the former. He regards it as the most perfect embodiment of truth, and the best means of impressing the mind with the "labour and precaution necessary to prove a thing." It is the grand corrective of the laxness of the natural man in receiving un-accredited facts and conclusions. Science, he says, "exemplifies the devices for establishing a fact, or a law, under every variety of circumstances; it saps the credit of everything that is affirmed without being properly attested (p. 147).

Hence it is as inveterate a foe to superstition as the morning light was believed to be to the nocturnal visitations of ghosts or the horrid incantations of witches.

Of Languages he asks—"If we are not to use a language at all, or very little, as is the case with the majority of those that learn Latin and Greek at school and college, is there any reason for undergoing the labour?" He follows this question up by the assertion that the only justification for learning a language is that it may be used to receive or convey information" (p. 168).

When treating of the sequence of subjects, which he does in the next two chapters, in answer to the question, at what age should education commence? he says: "The necessity of protracting the age to six or seven cannot be made out" (p. 185). He is of opinion it should begin at five.

The order of training should be, he insists, from the concrete to the abstract, from the simple to the complex, and, from the partic-

ular to the general (p. 198). The age between six and ten should be devoted to knowledge that needs mainly an effort of memory; this is the period for beginning languages, and learning poetry and prose. He gives precedence to rational Arithmetic as being much easier than Grammar, which he puts on a par with Algebra. In teaching Geography and some other subjects, he soundly advises to proceed from the known to the unknown; by directing attention first to the geography of the scholar's native place, so far as it is within his ken. The proper study of History is a very complex matter, involving considerations of various social phenomena known under the name of sociology. Hence, even in the study of our own country, Mr. Bain points out that an intelligent appreciation of the legislative, administrative and judicial systems, of appliances for war, of agriculture, trade and manufactures, is necessary to render past events intelligible (p. 227). He shows the absurdity of plunging children of tender age into the intricacies of European history whether ancient or modern. "If it falls flat," he says, "and has to be inculcated by the force of discipline it is better withheld" (p. 228).

MERCANTILE GRADED PENMANSHIP IN ELEVEN NUMBERS. By Samuel Clare, Writing Master in the Normal and Model Schools, Toronto. Copp, Clark & Co., Toronto.

BEATTY'S SYSTEM OF PRACTICAL PENMANSHIP IN ELEVEN NUMBERS. Adam Miller & Co., Toronto.

It is as important for our schools to have a proper system of Penmanship as it is to have good text-books in reading and arithmetic. These two series of Copy Books aim at being such, and, seeing that they are of native production, are worthy of our careful scrutiny.

The "Mercantile Series," which is in process of publication, seven books being already before the public, is in the hands of Mr. Clare, who has been for many years the Writing Master in the Normal and Model Schools of this city, and his extended experience in this capacity should render him

peculiarly fitted for the work he has undertaken. An examination of the books now before us fully bears out this opinion. The first three books are elementary in their character, and are made of small size to suit the age of younger pupils; they will commend themselves to all practical teachers for the character and style of the writing, the thoroughly methodical graduation of the copies, and the regular decrease of the amount of tracing on each page, so as to allow the scholar an opportunity from the first to practise independent writing. The size of the writing is such as to enable the youngest child to fall easily into the habit of making his letters with accuracy; and the style aims to meet that important requisite of modern penmanship—rapidity with legibility—but it is in the arrangement of the exercises that Mr. Clare shows his skill as a teacher of writing. He introduces but one or two new elements in each copy, and makes consecutive lessons of those letters that are similarly formed—gradually proceeding from the easiest to the most difficult—and in order that the scholar may become thoroughly master of what he has already learnt, constant practice is provided in the letters that have been taught in previous copies. Books 1 and 2 are devoted to the small letters; in book 3, after two copies, which are intended as exercises upon the work of the previous two books, capitals are taken up, so that when a child has written through these three books he has been made tolerably well acquainted with most of what he needs to know in the way of writing. By a system of paging in No. 2 book, which might be advantageously adopted in the other two, he has learnt to make all the figures.

The teaching of figures indeed is a distinguishing feature of this series of Copy books, since in several of the larger and more advanced books special attention is given to them; this meets with our entire approval, for we hold that children whose time at school is very limited should have an opportunity as early as possible of learning to write figures correctly as well as letters and words, since they will need to use

the one as often as the other in the business of their everyday life.

Nos. 1, 2 and 3 of the larger size are repetitions of the smaller size without the tracing, and with the addition of paging in No. 3 book. As, from Mr. Clare's excellent arrangement of the tracing, the pupil from the start is accustomed to independent writing, there is less necessity for these three books than there would otherwise have been; teachers however have the choice of the two kinds.

In No. 4 book the writing is reduced in size to that of a bold, free, and exceedingly fine commercial hand. Capitals receive more prominence now, and this book secures uniformity of size in the writing by a system of parallel lines. The size of the writing continues to diminish in books 5, 6 and 7, but the same simple and uniform style prevails throughout. In No. 5 the author begins each copy with a syllable that proves the most difficult combination in it, thus giving the scholar additional practice in what he most needs. We find such groups as *gh*, *quo*, *age* and *ash* dealt with in this manner.

While we have so much to say of the "Mercantile Series" that is favourable, there are one or two faults that need to be pointed out. In No. 2 book the *z* is abruptly introduced in the word *quiz*, before its formation has been taught. This mistake could easily have been avoided by using such a word as *quay*, which, besides teaching the use of *q* in combination, would have had the merit of giving more practice in the *y* which forms the subject of a previous lesson. After the second lesson in book 3, we fail to find *c*, a letter that needs particular attention on account of the difficulty of combining it neatly with others. So soon as the formation and combination of all the letters have been taught, every book should contain copious exercises in them, and special attention should be given to those that prove most difficult, but on no account should any letter be omitted. Mr. Clare has not been so attentive to this as to other points in his books, for we find among the small letters *j* does not appear in No. 4; *f*, *w*, *x* and *z* are omit-

ted in No. 5; *g* in 6, and *g* and *z* in 7. We trust it is enough to point out this error to have it avoided in the remaining books of the series. Notwithstanding these blemishes, the books before us bear ample evidence of ripe experience, painstaking labour, and superior skill and taste. They are alike creditable to their author and to the printers and publishers.

The plan of the "Beatty Series" is similar to that of Copp, Clark & Co.'s, both being based upon the Payson, Dunton and Scribner Copy Books, but in execution the one differs from the other as much as the work of an apprentice differs from that of a skilled mechanic.

In Beatty's first book the writing is all done by tracing, so that the child has no opportunity of testing his own ability to write the copy. There is a lack of method in introducing the letters which certainly does not speak well for Mr. Beatty's experience; *w* for example precedes *u* of which it is a modification, and *c* and *e* both come before *o*, upon which letter their formation is certainly based. Mr. Beatty's *c* is unique, he seems to have sympathized with the equivocal place it holds as a consonant, and has made it so nearly like its neighbour, vowel *e*, that in rapid writing it would be very hard to distinguish one from the other. In one of the copies of book 1, we cannot give the page, for, unlike the "Mercantile Series," none of these books are paged, we have the letters *s* and *r* in the word *sir*; two copies afterwards, a lesson is given to teach *r*, and in the next *s* is taught. Frequent repetition is as necessary in teaching writing as it is in any other subject in the school course; "a little at a time and that little well" is a maxim followed by all good teachers, but Mr. Beatty ignores it, for we have the letters *v*, *x*, *n*, *m*, *e*, *c*, *o*, *a* taught consecutively in so many copies without any attempt to perfect what has been already learnt by additional practice with the letters in combination; next we have the word *sir*, above referred to, which should really succeed the *s*, and then follows a syllable *nim* which might very profitably come next to

the *m*. No man of experience in teaching writing should ever commit such faults as these, and to say that the author of this series of Copy-books has done so, is to admit that he never taught children to write or has forgotten that he did so. After all the letters have been introduced, lessons are given in book 2, as exercises upon them, but in these why should *v*, *w* and *x* be omitted, and why should *j* be made without its dot? When pupils reach book No. 4, they begin to leave school for the duties of after life; it is therefore one of the most important of the series, and as such should be made as complete as possible in itself. Mr. Beatty gives practice in just twenty-four words in this book, and in these we fail to find *eight* of the small letters, *b*, *h*, *j*, *q*, *v*, *w*, *x* and *z*. With such a fault as this before us, we seriously doubt whether Mr. Beatty ever realized the responsibility of the work he undertook in preparing a series of Copy-books for our Canadian schools. The remaining books show the same blemish, for the letters *f*, *w*, *x* and *z* are left out in No. 5; *g* and *z* in 6; *j*, *x* and *z* in 7; *q* and *z* in 8; *h*, *j* and *q* in 9; *q* and *z* in 10,—which is the first book with angular hand;—and *j* in 11.

Of capital letters *Q*, *X* and *Z* are omitted in No. 8; *R*, *U*, *X* and *Z* in 9; and *O*, *P*, *Q*, *R*, *U*, *X* and *Z* in 11.

The size and style of the writing is tolerably uniform in books 3, 4, 5 and 6, but in 7 it is made about one-third smaller, and in No. 8 the versatility of the author's pen becomes conspicuous, for we find not less than four styles of writing; in No. 9 the same thing appears, the first page teaching one style of writing, and the second page teaching a totally different style. The letter *j* fares badly at Mr. Beatty's hands; we have already seen that he neglects to give its complete form, that he omits it altogether from four of his books, and when we examine the capitals we find he is not at all careful to distinguish its shape from that of the *I*. In Nos. 8, 9 and 11, where more than one line is needed for the copy, he takes about one-fourth more space between the lines than he allows the scholar for his writing. No. 8 is

intended to contain examples of commercial forms, but as they appear here, they are forms more honoured in the breach than in the observance, from the inextricable manner in which many of them are mixed up. Perhaps the most serious fault of these books is in the shading of the capitals. Invariably the curve of the oval of such letters as *A* is shaded in the horizontal part resting on the base line. In actual practice it is impossible to shade thus, inasmuch as this part of the stroke is made with the side of the pen which necessarily makes a fine stroke; if any shading is to be done it should appear in the down stroke when both points of the pen can be brought into play; and all good systems of penmanship which we have yet seen show it thus.

After the examination we have made of these Copy-books we can come to no other conclusion than that Mr. Beatty has not given the public the full benefit of his knowledge and skill, or that he was not equal to the task he undertook; but whether the defects we have pointed out are attributable to his fault or to his misfortune, they are such as no amount of puffing can prevent coming to light; and he had better set about removing them altogether.

AN ETYMOLOGICAL DICTIONARY OF THE ENGLISH LANGUAGE, arranged on an Historical Basis. By the Rev. Walter W. Skeat, M.A. Part I., A-Dor. Oxford: At the Clarendon Press; London and New York: Macmillan & Co. 1879.

An etymological dictionary arranged on an historical basis has long been a desideratum with students of the English language. The only work which will bear a moment's comparison with the present one—that of Mr. Hensleigh Wedgwood, of which a second edition appeared some seven years ago—though admirable of its kind, is defective in not indicating the precise source whence any particular word was actually derived. Thus, to take an instance at random, under the word “Beverage,” we are referred first of all to the Latin *bibere*; whereas, as a matter of fact, the word came to us from the French,

though the French word itself is of Latin origin. In the present work a brief account of the history of each word is given, showing the immediate source of the word, and the approximate time of its introduction into the language, or, if the word be a native one, the Middle-English form or forms of it. In some cases the words are traced back to their primitive Aryan root. This is the only proper method on which to frame an etymological dictionary. As Mr. Skeat himself says, "no error is more common than to mistake a word that is merely *cognate* with, or *allied* to, the English one for the *very original* of it." Nearly every English dictionary and every other work which treats of etymology with which we are acquainted, is more or less marred by mistakes of this nature. Mr. Skeat, we are glad to see, steers clear of all such obstructions to accurate scholarship. Wherever merely cognate forms are cited from other languages, which is frequently done for the sake of illustration, he is careful in every case to indicate that they are merely cognate and not derivative; the actual derivation being indicated by a capital initial letter immediately following the definition.

The author is Professor of Anglo-Saxon in the University of Cambridge, and is well known as one of the first of living English scholars; a fact which is an ample guarantee for the thoroughness and accuracy of his work. The vocabulary is much fuller than that of Mr. Wedgwood's dictionary, and includes all the primary words of most frequent occurrence in modern literature, and also, in many cases, their derivatives. Much space is saved by the use of an excellent and simple set of symbols. Altogether the work is one which will be found indispensable by every real student of the language. We hope to return to it and to notice it in more detail when the subsequent parts are published.

The typographical execution is superb, and will enhance the great reputation which the Clarendon Press has already acquired for the minute correctness and artistic beauty of the work which it turns out. The dictionary to be completed in four parts, of about

176 pages each, the price per part being ten shillings and sixpence sterling. Part 2 will be published about the first of November. The publication can be obtained from Messrs. Macmillan, New York, at the comparatively low price of two dollars and a half per part.

JULIUS CÆSAR, Edited by C. E. Moberley, M.A. Oxford: Clarendon Press. JULIUS CÆSAR, Edited by William J. Rolfe. New York: Harper & Brothers. Toronto: A. Piddington.

Both of these editions are highly creditable to their respective editors. The special characteristics of each are similar to those of the other plays already published under the same editorships. Mr. Rolfe has had the advantage of coming later in point of time, and of making free use of his predecessor's labours. For verbal and textual criticism, and information external to the play, the Clarendon Press edition is admirable. Mr. Rolfe attempts to give some help to a proper understanding of the motives of the drama, the characters presented, and their mutual relations. Of this "æsthetic criticism," the Oxford editor entertains a poor opinion. In Mr. Wright's preface to his edition of *King Lear*, he is particularly severe on such "sign-post criticisms" as æsthetic notes contain. He considers that they interfere with the independent effort of the reader to understand the author, and "would substitute for that effort a second-hand opinion acquired from another, which, both as regards method and result, is vastly inferior in educational value." We certainly think that the careful explanation of the text is the first duty of the teacher, and that the higher criticism should not be brought into play until philology, history, and grammar have thrown all possible light on the subject. No doubt there is the risk of teaching mere opinions, the reasons and grounds of which must, to a great extent, be beyond the comprehension of ordinary pupils; but we think the true case is not stated by Mr. Wright. Parrot-like pupils will of course receive little benefit from æsthetic instruction, but the more intelligent will be stimulated by an independent analy-

sis of the characters and situations. Even, if at the time, the full force and significance of the critical remarks of men of genius, may not be apparent to them, fuller light will come later on, and the instruction will not be fruitless. It would seem that æsthetic criticism must almost of necessity be brought to bear, in order to engage and stimulate the reader's attention; and in the case of literature which affords such a marvellous and inexhaustible field for the exercise of the highest critical faculty, surely it would be a mistake to ignore it utterly in books prepared for the use of schools and immature minds. We think it would be wise to confine such instruction within limits; but a discreet and properly cultivated teacher will find little difficulty in assigning these limits. Mr. Rolfe, as we have said, aims at providing by judicious excerpts from the best criticisms, some assistance of this kind. It is perhaps doubtful whether sentences divorced from their context, are likely to convey the critic's meaning very clearly to the student; they, perhaps, are more for the teacher's benefit, and will be of great use to him, if judiciously employed. The unwearied labours of Shakesperian critics have, indeed, not borne as precious fruit as could be wished, and the critical result of any real value is contained in a very few books. Nothing could be better than Professor Dowden's *Primer*; and his short but lucid contrast of Brutus and Cassius, in the page devoted to this drama, should be illustrated from the play itself. Indeed no criticism should be taught without being justified out of Shakespear's own mouth. There is one very annoying defect in all of the valuable editions of English classics published by the Clarendon Press. It is astounding that their value should be so much depreciated as it is, by the want of indexes. In this respect, Mr. Rolfe's editions are worthy of all praise. While upon this subject, we would call attention to the value, to all teachers of literature, of the *London Academy*. It is not an expensive paper, and it is the very best chronicle of contemporary English literature. Besides, it contains brief accounts of the meetings of

Literary Societies, and its notices of papers read before the Shakesperian Societies, from time to time, contain much new and valuable information on points of Shakesperian criticism of all kinds. For some time to come Caesar will be of special interest to High School Masters, and those preparing for University Honours in English, and for First-Class Certificates. No editions better for school purposes can be found than those we have been discussing. Craik's "English of Shakespeare," edited also by Rolfe, is really only a philological commentary on this play, and contains matter of the highest value to the scholar and the teacher. With these nothing is left to be desired except it may be that Caesar may soon be included in the list of Furness's invaluable Variorum editions.

THOMAS CARLYLE—his life, his books, his theories, by Alfred H. Guernsey. New York: D. Appleton & Co. Toronto: A. Piddington.

We have little to say about this issue of the Handy-Volume Series. To those who don't know what books Carlyle has written, it will no doubt fulfil the promise of its title and come in handily for their information. The names of all the works are given, and two or more extracts from each. But for any assistance in discovering the meaning and drift of Carlyle's philosophy, or for any intelligent criticism on his writings, we shall look here in vain. If we were asked what scheme Mr. Guernsey had built his book upon, we should say that the problem he set himself was probably this: "Given a distaste in the Northern States for the views held by Carlyle as to negroes being made to work—required to prove a steady deterioration in the philosopher, culminating in the 'Latter day Pamphlets,' in which such views appeared." This task he has accomplished to his own satisfaction, and, let us hope, to that also of his countrymen. Possibly, however, some people may be inclined to believe that there is more truth in the views even of an old Carlyle than in those held by the youngest and jauntiest of American book-makers. Still, as we have said, to those

who are unacquainted with Carlyle's writings, the work will serve a purpose, but we trust that that purpose will not stop short of inciting the reader to gain such a knowledge of Carlyle, "his books and his theories," as he must not look for in the brief compass of this little volume, and from a compiler who cannot be said to be heartily in sympathy with his author.

WEBSTER'S UNABRIDGED DICTIONARY.

New edition, 1928 pages, 3000 engravings, 4to, sheep. Springfield, Mass. : G. & C. Merriam, 1880.

The most intense "Britisher," to use a cis-Atlantic term, and the greatest stickler for the supremacy of English achievement in the realm of literature, must admit that in the compilation and construction of Lexicons of the English language, English effort has been immeasurably distanced by American industry and enterprise. This acknowledgment, at the outset, must be unreservedly and ungrudgingly made. Of course, in admitting so much, it is not to be supposed that English philology is thereby discredited, or that English scholarship and letters do not really hold the high place claimed for them. Both English philology and English scholarship stand to-day, as in the past, in a pre-eminent position among peoples speaking the English tongue. Lexicography in England, moreover, has a history and a record of achievement and progress of which Englishmen need never be ashamed. To-day, the Lexicography of England, for the masses, at any rate, is the marvel of the world. In extent, accuracy, usefulness, and cheapness, English lexicons of the language cannot be surpassed. In Collins', Chambers', Nuttal's, and the other school and popular English dictionaries of the day, the English public are better and more cheaply supplied than are our neighbours across the line; while at a price surprisingly low, considering its merits and the many admirable features of the work, the English journalist and student of the language has in Stormonth's Dictionary a lexicon which may well serve the purpose of the more ambitious works of the American press.

When we have said all this, however, we fear that we have nearly exhausted our good words in behalf of English lexicographic publishing. It is true that there are greater enterprises in English lexicography than those we have mentioned. There are the works of Richardson, Todd, Ogilvie, Walker, Johnson, and Latham, and the auxiliary productions of Wedgwood, Trench, the new work of Skeat's, and the various dictionaries of the professions,—law, medicine, and theology; but these are all either specialties or works that require others to supplement them to be of adequate service to the scholar or to the professional student of the language. And just here comes in the contrast of the position of the Englishman with that of his kinsman on this side of the Atlantic. He has no "Webster;" no book of an all-satisfying requirement, no one reference work in which he will find all that he may be in quest of, no single quarry that will yield him every ore his demands require the inspection of—such as he may find in the mammoth "Unabridged Webster." As a publishing enterprise, having regard to its uses, its thoroughness, its compactness, and its price, it is an amazing product of literary skill and mechanical workmanship. The new edition lays the consutor of its pages under a greater debt of obligation than even the previous ones, for we find it enriched by a supplement containing nearly 5,000 additional words, with pronunciation, derivation, and definition, and the addition of a new biographical department comprising nearly 10,000 names of men prominent in every field of labour, both living and dead. Closely scrutinizing the supplement, we find it a most valuable addition to the work, embracing, besides old words with new meanings, new words which have come into the language as recent coinages, or that have become familiar in popular science, and are now incorporated from professional and technical lexicons. The range of pictorial definition has also been largely extended in the new issue, and now includes some 3,000 wood-cuts and drawings which illustrate the words in the body of the Dictionary, and are further made good use of, in classified

groups, at the end of the work. The educational value of this pictorial Cyclopædia is manifestly great, and as a bit of enterprise on the part of the publishers the appended matter calls for hearty commendation. To the teacher, the preliminary chapters of the work on the principles of pronunciation, orthography, etc., and Dr. Hadley's brief sketch of the English language, will be found exceedingly valuable. The other departments, appended to previous editions and here reproduced, will also be found rich in material for reference. These are the pronouncing vocabularies of Scripture names, Greek and Latin proper names, Modern Geographical names, and common Christian names. The pages devoted to Quotations, Phrases, Proverbs, and Colloquial expressions, from the Classical and Modern languages, with their English equivalents, will be found no less interesting. Of course, in critically inspecting this great thesaurus of the language, we now and again stumble over defects which are inseparable from all enterprises of the kind. These are not so much slips of the editor's pen, as instances where a prolonged incubation of thought directed upon them would lead to their removal or improvement. But where the whole is so eminently satisfactory, one must not look for the product of omniscience. One serious drawback to the work we must specially refer to, and that is the annoying incompleteness of Mr. Wheeler's compilation of "Noted Names of Fiction." In so thoroughly overhauling the work in the present edition, it is a matter of surprise that this department was not submitted to extension and revision, more particularly as the material for its useful enlargement is now so readily

to hand in the publications of Brewer's "Dictionary of Phrase and Fable," the same author's later work, "The Readers' Hand Book," and the recent "Dictionary of English Literature," by W. Davenport Adams. Of course, to incorporate in Mr. Wheeler's very incomplete vocabulary the new matter which the works above-mentioned furnish would make a serious addition to this department; but, instead of maintaining it in its present defective form, we would rather see it expunged from the Dictionary, and issued in extended shape as a separate publication. This hint the present writer, more than a year ago, gave the publishers, and suggested material for a supplementary volume to the present "Webster's Unabridged," which we hope to see Messrs. Merriam yet take up and work out. An extended collection of Synonyms and Antonyms, beyond what is given in the present Dictionary, and an exhaustive compilation of Poetical Quotations, would, with an enlarged Dictionary of Fictitious Personages, make a worthy complement to the book before us. But one must be a churl to find serious fault with any shortcomings in the present work. The volume does not profess to be a cyclopædia of all knowledge; and what it purports to be it really is; there should not be a school in the Dominion where access cannot readily and constantly be had to it. No teacher, and we might add, no reader of the language, can afford to be without it, for it is a monumental work, and the labour and money which some two score years have swallowed up in its preparation and successive improvements, is, not to speak of the eminently satisfactory results achieved, a noble tribute to our grand old mother-tongue.

SCIENCE DEPARTMENT.

[A series of notes prepared for the Monthly, by Henry Montgomery, M.A., Coll. Inst., Toronto].

THE first number of a new journal devoted to Chemistry, and published in the city of Baltimore (Innes & Co.), has lately reached us. It contains seventy-six pages of valuable matter, is neatly got up, and presents a very creditable appearance. It is entitled the "American Chemical Journal," and is edited "with the aid of chemists at home and abroad," by Ira Remsen, Professor of Chemistry in the Johns Hopkins University. In the announcement it is stated that this journal is to comprise from sixty-four to eighty pages, and is to be issued only when there is a sufficiency of suitable material, which material is to consist of original papers; articles from other journals; reviews and reports on applied agricultural, physiological, physical, analytical and mineralogical chemistry. That it will rank high in the scientific literature of America is no more than may be expected from the perusal of the specimen number, and from the fact that such distinguished names as Ira Remsen, Ph.D. (Göttingen); H. Newell Martin, D.Sc. (London), A.M. (Camb.); and J. Norman Lockyer, F.R.S., are connected with it.

DR. T. STERRY HUNT believes our atmosphere to be cosmical and not merely terrestrial; that is to say, a portion of a "universal medium diffused throughout all space," but condensed about the centres of attraction. Even the waters of our world form a part of this universal medium. Hence, a change or disturbance in the atmosphere of any one of the globes would cause itself to be felt in the atmosphere of all the remaining ones. In this manner great climatic changes are accounted for. Sir William Grove advanced the same idea

of a cosmical atmosphere in the year 1843, and Mr. Williams also advocated it in his work, "The Fuel of the Sun."

THOSE desirous of preserving minute animalcules in the natural shape will be glad to learn that such may readily be done by means of Osmic Acid. This acid (Os. O_4), which is a poison, is dissolved in water to the amount of two per cent. A drop of this solution is put upon the infusoria under the covering-glass, but if the vapour of the acid be permitted to reach the organisms they will be instantaneously fixed and preserved. This plan has been made known by M. Cortes, of Paris. In employing the foregoing method for the preservation of the microscopic beings of an organic infusion, too great caution cannot be exercised, as the tetroxide of osmium is volatile and emits irritating and poisonous fumes.

AN American naturalist, Mr. Ernest Morris, has just returned from his fourth trip of exploration to South America, bringing with him, what is reported to be, an immense collection of the flora and fauna of Brazil, comprising seven thousand butterflies, fourteen thousand beetles, numerous moths, and a great number of curious and beautiful plants. One of his specimens is that of a plant indigenous to the regions around about the Rio Negro River, and known to the natives as "cat's-paw-cotton," which he considers capable of conversion into a most useful fabric. He describes the inhabitants of that river, lake and forest country, as poor, filthy in the extreme, exceedingly indolent, and possessed of but little religion or morality. The limited amount of labour done has to be performed by the women.

There are various shades of colour; but all are of Indian origin. The waters of the Rio Negro, one of the finest tributaries of the Amazon, are very dark, and in places quite black, owing to the presence of waste matter from the extraordinary vegetation along its banks. The dense forests are "never still at night." He speaks of having greatly relished a dinner of monkey-meat in one of the native palm huts, and declares the flesh of monkeys very palatable and by no means to be despised. Living in Brazil costs only twenty cents a day. Mr. Morris intends soon returning to explore the Japura River.

THE heart is composed of striated muscular fibres, a kind usually under the control of the will and hence termed voluntary; yet only two or three cases have been authentically recorded where the heart was really voluntary, and the individual, by volition, had the power to regulate its action. One of these persons, in showing his heart to be voluntary, stopped its movements for too great a length of time, and of course death resulted. Another instance of this rare and wonderful power is to be seen in the case of Dr. Elias Thomas, a native of Calcutta, who not only possesses control over the heart, but is also destitute of both pericardium and diaphragm, so that he can at pleasure remove the vital organ from its own proper position to other parts of the body-cavity, and back again to its natural place. Not long ago Dr. Thomas gave an exhibition in the presence of the medical professors and students in Augusta, Ga. At the beginning of the demonstration the heart was felt by Drs. Black, Campbell, and other gentlemen, and found to be beating naturally in the place where a heart ought to beat. Shortly afterwards there appeared low down in the left lumbar region a large tumour whose pulsations were synchronous with those at the wrist, while the pulsations before observable in the chest had now disappeared. He then removed the tumour to the right side of the abdomen, where the beating was again distinctly perceived. Then he raised the heart up into the chest, and altered its position so

as to make the pulsations appear at one time on the right side and at another time on the left. During the forced stoppage of the heart's action no pulse could be felt in wrists, ankles or temples.

An explanation of this singular ability to order the workings of the central circulatory organ is apparently found in the predominance of the cerebro-spinal nerve-supply over the supply from the sympathetic system which prevails in most individuals.

THE corn crops of Southern Russia have been terribly ravaged by swarms of insects belonging to two species of Coleoptera. The damages sustained are estimated at \$1,500,000. These beetles are very well known to European entomologists, always occurring in the southern portions of that continent, but seldom appearing in great numbers. They are said to be smaller than the English cockchafer, but in other respects to bear strong resemblances to it. With a view to check the multiplication and progress of these ravenous insects, the London Entomological Society appointed a committee to investigate the matter and record observations, to be sent to the British Consul at Taganrog. In their report the committee express their belief that, "It is impossible, in the present state of entomological science, to account accurately for visitations like this. It may be that the pupal condition is prolonged indefinitely, or until circumstances favour its determination; by this reasoning—which is warranted by what we know to be the case in some other insects—the pupæ might be accumulated from year to year, and the perfect insects from these accumulations burst forth simultaneously."

The *Weekly Scotsman* of 19th ult., treats at some length of the noxious vapours so abundant in the towns and cities of Great Britain, especially in those possessing large manufactories. Although Canada is comparatively a young country, and, as a consequence, our manufacturing establishments are not so numerous, nor are our cities so large and densely populated as the British,

yet even here the subject of "Noxious Vapours," is one of practical importance, affecting our comfort, convenience, and health, physically, intellectually and morally. The *Scotsman*, no doubt, rightly attributes the presence of the most prevalent deleterious gases of the atmosphere of their towns to the burning of coal containing sulphur, and to the various industrial manufactories, the former producing immense quantities of sulphurous acid, and the latter plentiful supplies of hydrochloric acid in vapour; but the bad ventilation of buildings, and the great scarcity of healthy plants in cities are also mentioned as auxiliaries in the production and maintenance of foul gases. The carbon dioxide gas added to the air by human respiration, combustion of fuel, of coal oil, gas, etc., ought naturally to be used by the vegetable kingdom, and a supply of oxygen be given in return; but where plants are few and the population crowded, as is the case in too many streets of all towns, there is no sufficient counteracting influence, and the carbon dioxide is permitted to accumulate to an extent totally incompatible with a proper state of health. Carbonic acid gas when inspired by a human being is not *poisonous* but simply *suffocating*, and if one-tenth per cent. of it be present in air, that air should not be respired, while ten per cent. of it completely extinguishes the vital flame. Then, there are always emitted from the lungs and skin, as companions of this gas, certain putrescent organic substances which manifest their presence by an offensive odour when expired air is kept confined in a vessel for a short time.

Whilst fully recognizing the dangers to be constantly and carefully guarded against in the excessive accumulation of sulphurous acid, carbonic acid, and other vapours, through the processes of combustion, respiration and manufacturing, as well as from defective ventilation and lack of plant life, we would do well to recollect that there are, peculiar to towns and cities, several other fruitful causes of disease besides those referred to above, such, for instance, as want of cleanliness on the part of both private individuals and public officials, bad drainage,

and impure water supplies. With respect to cleanliness it may be said that there is as great a want in the country as in the city. This may be true; but it must never be forgotten that very different results are produced by uncleanly habits in the open country and in the crowded city; what may be harmless neglect in rural regions becomes positively destructive where thousands are clustered together. It would be interesting to know what proportion of the noxious gases that contaminate the atmosphere of our towns has its origin in the decomposition of the innumerable kinds and conditions of vegetable and animal matters so frequently to be found in yards and lanes. The evils arising from imperfect drainage, the unwise habit of connecting sewers with the inmost chambers of modern dwellings, and the fever-poisons carried in many waters, need not be dwelt upon. The remedies to be employed, in order to keep in a tolerably pure condition the air we breathe and the water we drink, may be summarised as follows:—The planting of trees on every street; the cultivation of gardens, and encouragement of lawns; ventilation by which not only the injurious gases may be quickly got rid of, but also a continuous and sufficient supply of good air be obtained; the careful and speedy removal of all organic offal to a great distance from human habitations, or to be buried like other remains of animals; instead of being deposited on neighbouring vacant lots, or used in filling up holes within the city limits; also proper drainage; and the thorough filtration of all water used for drinking purposes. The purification of the public water-supply is far too often grossly neglected by civic authorities; therefore, they who are desirous of procuring it free from objectionable substances must make frequent use of the charcoal and sand filter. For clearing the air of the vapours of sulphurous acid, added to it by burning coal, no satisfactory method appears to have yet been made known. With respect to the vapours of hydrogen chloride generated, for instance, in the manufacture of sodium carbonate, a very great deal has been accomplished; in place of allowing them to escape

they are condensed, and afterwards utilized in the preparation of bleaching-powder.

Two papers have recently been read before the Geological Society of London, England, by George Jennings Hinde, Esq., F.G.S., who has been a resident of Toronto for some years past. One of these was "On Conodonts from the Chazy and Cincinnati groups of the Cambro-Silurian, and from the Hamilton and Genesee-Shale divisions of the Devonian, in Canada and the United States." The Conodonts, which are "minute, glistening, slender, conical bodies, hollow at the base, pointed at the end, more or less bent, with sharp opposite margins," were first described by Pander, as occurring in the Silurian rocks of Russia, and have been variously placed by writers amongst the Molluscs, Annelides and Fishes. Mr. Hinde gives his opinion that their "true Zoologi-

cal relationship is very uncertain," yet he thinks they most resemble the teeth of hag-fishes.

The second paper was "On Annelid Jaws from the Cambro-Silurian, Silurian, and Devonian Formations in Canada, and from the Lower Carboniferous in Scotland." He mentioned fifty-five different forms of wandering Annelid worms represented by his large collection. These remains are of interest as being among the earliest forms of life that have been found, excepting, perhaps, *Eozoon Canadense*.

It is pleasing to learn that Mr. Hinde's very practical and original labours have been highly appreciated by the London Geological Society, Dr. Woodward and others expressing admiration of the labour and research shown in these papers, as well as satisfaction that the author's conclusions respecting the Annelid Jaws were correct.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

THE LENNOX AND ADDINGTON TEACHERS' ASSOCIATION held a convention on the 25th April, at Napanee, at which nearly a hundred teachers were present, Mr. Fred'k Burrowes, Inspector of Public Schools, occupying the chair. The exercises commenced with a lesson on Drawing, by Mr. A. B. Kidd, Head Master of Newburgh Public School, in which some valuable practical instruction in this very interesting branch of popular education was given, and elicited much commendation.

The Association then proceeded to elect the officers for the current year with the following result:—

President—F. Burrowes, P. S. I.

1st Vice-President—R. Matheson, B.A.

2nd " " —A. B. Kidd.

Secretary—Wm. Tilley.

Treasurer—James Bowerman.

Committee of Management — Wm. J. Black, Napanee; D. G. Storms, Ernest-

town; W. R. Clancey, Ernesttown; Mrs. R. McKim, Selby; Miss J. Walsh, Napanee.

Mr. Thos. Henry then took up the subject of Algebraic Factoring, confining himself to the factoring of trinomial, and binomial quantities. His modes of operation, and of demonstrations were characterized by much simplicity.

He was followed by Dr. McLellan, who, after complimenting Mr. Henry upon the accuracy of his methods, took up the subject more extensively, and gave several artifices for the factoring of quantities that hitherto it has been deemed impossible to factor.

The next subject was the English Literature for Third Class Teachers, which was ably handled by Mr. Matheson. The systematic mode of studying the subject which he recommended must be of the greatest use to candidates in preparing for an examination.

Dr. McLellan then gave an admirable lesson on the teaching of arithmetic to junior

classes shewing how arithmetic should always be taught to little ones by means of tangible objects, and that it could be so taught as to master the four fundamental rules before ever a text-book was put into their hands. He went on from that to the teaching of more complicated arithmetical operations, and showed how they may be simplified by adopting the analytic method.

The first subject taken up on the second day was Geography, introduced by James Bowerman, Head Master of Napanee Model School, who treated the subject in a masterly manner. He showed how young pupils should be made familiar with the cardinal points, and the relative position of places by means of local objects, and recommended the use of geographical pictures to illustrate the different divisions of land and water. He recommended map-drawing as one of the best means of teaching descriptive geography thoroughly.

Dr. McLellan then took up the subject of reading. After referring to the indifference with which reading has too often been regarded, he spoke of the more common errors and defects, such as general slovenliness of articulation, reading too rapidly, reading in a monotonous tone, &c., and gave practical suggestions for the remedying of these. He showed that reading was much more than an accomplishment, that it was a powerful educating exercise in cultivating the habit of continuity of thought. He enlarged upon the necessity of careful preparation on the part of the teacher, not only by close study, but also by the reading aloud of each lesson before attempting to teach it.

Mr. Embury, of Newburgh High School, then gave a very useful lesson on the teaching of Euclid. His method of presenting the subject to young pupils, was somewhat analogous to that recommended by Dr. McLellan in the teaching of elementary Arithmetic, and by Mr. Bowerman in the teaching of Geography, namely to avoid abstractions as much as possible, and to teach definitions and axioms by means of the blackboard without referring to a text book.

The concluding subject of the session was

an address by the President on, "How to secure regular attendance." As some of the aids in securing this very desirable attainment Mr. Burrows recommended the following:—

1. That the teacher should make the school room and its surroundings as attractive as possible.

2. That he cultivate a kind and courteous manner towards his pupils.

3. That he pay particular attention to those pupils who are the least precocious.

4. That he prepare the studies for each day so as to be able to impart to them a living interest.

- And 5. That when occasion requires it, he visit the parents of absent pupils to make inquiries, and thus manifest his interest in them.

WENTWORTH TEACHERS' ASSOCIATION.

—The semi-annual meeting of the above Association met in the Collegiate Institute, Hamilton, on the 2nd of May.

The meeting was opened by prayer by Mr. Shanks. The attendance was large.

Moved by Mr. B. Bull, seconded by Mr. Norton, that Messrs. Smith, Dickson, McQueen, Fletcher, Norton and Stuart be a committee to revise the regulations of the Teachers' Library. Carried.

Moved by Mr. Fletcher, seconded by Mr. Davidson, that Messrs. McQueen and Norton be our representatives to the Provincial Teachers' Association. Carried.

Moved by Mr. Fletcher, seconded by Mr. Norton, that Messrs. Cruikshanks, Davidson and J. F. Ballard be a committee to consider the matter of corporal punishment. Carried.

A lengthy discussion ensued on the use of corporal punishment in schools, Messrs. Norton, Fletcher, Moore and Shaver taking part.

Moved by Mr. R. McQueen, and seconded by Mr. R. E. Moore, that Messrs. Norton, Robertson and Fletcher be a committee to nominate officers of the Association for the ensuing year. Carried.

Mr. R. E. Gallagher, of the Hamilton Commercial College, gave a lecture on penmanship, which was very favourably received.

The committee on the nomination of officers brought in the following report :—

President—George Dickson, M.A.

Vice-President—J. H. Smith, P. S. I.

Treasurer—W. C. Martin.

Secretary—W. E. Norton.

Executive Committee—A. Macallum, M.A.,
A. W. Falconer, William Stewart.

The report was adopted.

Mr. W. H. Ballard, M.A., then took up the subject of Mental Arithmetic, and occupied the remainder of the afternoon in dealing with short and concise methods of solving difficult problems in arithmetic, which proved very interesting.

The evening Session consisted of a musical and elocutionary entertainment, in the latter of which Mr. Lewis, of Toronto, took prominent part.

SATURDAY MORNING SESSION.

Mr. Richard Lewis, Head Teacher of the Dufferin School, Toronto, introduced the subject of "How to Teach Reading." He first treated of the objects to be aimed at in teaching reading, and held the opinion that if this subject were properly taught, public readings would in the course of time take the place of the theatre in public entertainments. He then spoke at some length upon the present system of teaching reading in our Public Schools, and condemned it in almost unqualified terms as being clumsy and illogical. He next took up the phonic system of teaching and distinguished it from the phonetic method, of which he does not approve. He explained the phonic method as used in many of the leading schools in the States, and recommended it as the best for cultivating the voice and making good readers. He treated the subject in a very able manner, and showed the great importance of distinct utterance of the vowels and the final consonants, and dwelt at some length upon inflection, pitch and tone. Some fine illustrations of the different tones to be used in elocutionary reading were rendered in good style. A very interesting and instructive part of his address was his rendering of "Mark Antony's Oration" interspersed with

explanations of the different tones and inflections used in the selection.

Mr. Smith, I. P. S., moved, seconded by Mr. Sheppard, that a vote of thanks be tendered to Mr. Lewis for his very able and instructive address. Carried.

Mr. Smith brought forward the claims of the CANADA EDUCATIONAL MONTHLY, and urged upon all to assist in increasing its circulation.

Moved by Mr. Shank, seconded by Mr. R. McQueen, that the Committee appointed yesterday to revise the regulations regarding the Library, be authorized to make such regulations as they may see fit for the distribution of the books. Carried.

The Association then adjourned.

THE COUNTY OF ONTARIO TEACHERS' ASSOCIATION held its half-yearly meeting at Port Perry, on Friday and Saturday, May 16th and 17th.

The President, Mr. Jas. McBrien, P. S. Inspector, occupied the chair. Mr. H. S. Clerke was introduced and read an excellent essay on "How to teach Reading and Spelling to beginners."

Mr. D. Jennings followed with an instructive paper on the "Teaching of Geography." Short addresses on English Literature were given by Messrs. Pedley, Robinson, Magee and Tambllyn.

On Saturday "Solutions to Arithmetical Problems for Second and Third Class Certificates" were given by Mr. J. J. Magee, B.A. Mr. Jas. Hughes, P. S. Inspector, Toronto, gave a lengthy address on "Mistakes in Teaching." "Factoring" was fully exemplified by Mr. Jas. McKenzie. The "Question Drawer," conducted by Mr. W. W. Tambllyn, M.A., closed the proceedings. On Friday evening Mr. Hughes lectured on the Kindergarten. Both of his addresses were well received.

The next meeting is to be held in Uxbridge, about the middle of October, when another successful convention is expected.

JAS. BROWN,
Sec.-Treasurer.

EDITORIAL NOTES.

TOPICS OF THE TIME.

WITH the present number we complete half a year's labour in our endeavour to establish a Monthly Magazine in Canada in the important interests of Education, of a character befitting the cause it represents, and the profession engaged in it. It is not for us to say how successfully we have done our work, nor how far we have fulfilled the promise of our original prospectus. We are but too conscious of having come short of the ideal with which we set out; though it will be understood that the realization of our aims was contingent as much upon the efforts of others as upon our own. Still, we have not been left in the dark as to the acceptability of our work, for the response it has met with has been hearty and flattering. If the range of acknowledgment has been somewhat narrow and the area of our circulation not all that could be desired, it has been due to causes other than those which the Magazine could itself influence. For we have not only had to contend against indifference in regard to our venture, but, to some extent, there has been a withholding of support from ungracious motives. The teacher's occupation is not always manifested in its liberalizing light. In the profession, as out of it, are to be found men sluggish alike in their intellect and their sympathies. The earnest, enthusiastic natures are ever the few, as are those in the profession on whom rests the spirit of their vocation. Yet have we striven to arouse a kindling interest in educational work, and there has been much to encourage one in the result. With each successive issue we have made a gain, and we hope, as we go on, to find continuous and increasing evidence of it. With a closer contact we shall have a quickened activity, and with a wider acquaintance will come an extended support. Meantime,

perhaps our friends will do a little more to contribute to this. There are many sections of the Province in which *THE MONTHLY* is yet a stranger. In all of them the publication should be welcomed, for only a wide-spread circulation can sustain it. County Teachers' Associations offer the readiest means of enlarging the sphere of our activity, therefore vigorous and concerted measures to disseminate *THE MONTHLY* should not be omitted from any programme at the Conventions. Substantial aid on such occasions might also be rendered in securing literary contributions, and otherwise in quickening the sense of the need of a fittingly representative professional journal, and in ensuring it adequate support. Nor should the social value of an organ like *THE MONTHLY* be lost sight of at these meetings, for the greater the professional recognition it receives the more it will be able to interest public sympathy in the teacher and his work. At its almost nominal subscription rate, moreover, little should interfere with its most signal success. May this be now speedily secured.

During the summer months, when matter becomes rather scanty, and support somewhat flags, the Magazine will appear bi-monthly though the issues will be increased in bulk to make up in part for the absent numbers. With the September number the monthly issue will be resumed, and we hope in the interval to receive large accessions to the subscription list, and many contributions for its pages.

In reply to a letter from Mr. Seath, Chairman of the Executive Committee of the High School Masters' Section of the Teachers' Association for Ontario, requesting him to postpone the fixing of a date for the Annual Intermediate and for the one next

after July 1879, until the High School Masters have had an opportunity of expressing in convention their views upon the subject which is of vital importance to all of them, and in reference to which there exists among them a diversity of opinion, the Minister of Education has stated that it is not his intention at present to do more than arrange for the examinations in July 1879, and that he will be glad, before fixing a time for future examinations, to give the High School Masters an opportunity of discussing the subject in all its bearings. He however intimates that, in the best consideration he has yet given to the subject, the academic year should terminate at midsummer, and that the Annual Examinations should take place early in July. This, however, as he says, is merely his own opinion, and he will no doubt be prepared to make such arrangements as will suit the interests of the majority. For our own part, we are afraid that strong objections can be raised to holding the Intermediate in either July or December; and it seems unfortunate that the Department should persist in maintaining a system that is on all hands admittedly productive of injury to the cause of education. That the present modification will be found to work badly, so far as "payment by results" is concerned, no one who has watched the current of opinion can doubt; and this change must be regarded as the beginning of the end. Years ago, when Prof. Young wrote those reports on High School Education which showed up the defects of the system in no sparing language, the great panacea advocated was increased inspectorial power. But this has been found to be illusory, and the very elaborate scheme devised to distribute \$10,000 a year has not met with the reception due to the ingenuity of its promoters.

Uncomplimentary murmurs, often "not loud but deep," have been provoked, and it will soon be a question for discussion whether it is in the public interest to spend about \$9,000 a year, or to distribute \$10,000. Money spent on education is well-spent money; but money spent on the mere details and red-tapism of our system is badly invested.

We are glad to notice that the Minister of Education has by his action in the matter of the date of the Intermediate, recognized the propriety of obtaining the opinions of the teachers direct from themselves. By systematically adopting this course he can greatly increase his own personal popularity with the profession, and at the same time add materially to the efficiency of the Department over which he presides. There are few professions which have so many drawbacks as the teacher's, and it is as much the duty as the privilege of the Minister to increase its importance in the public estimation.

BRIEFS ON NEW BOOKS.

Macmillan's Copy Books, 14 numbers, 3d. each. London: Macmillan & Co. By the courtesy of the publishers we have had a set of their English Copy Books forwarded to us, with the appropriate motto upon each, "No line which, dying, he could wish to blot." Excellent as are all the publications of this house, we cannot in the present instance, however, commend its enterprise. Indeed it must be allowed that in the matter of Copy Books, as in Atlas-Geographies, the product of this side the Atlantic is superior to that of the other. There are two radical faults in the Copy Books before us, which, in our view, condemn them at the outset, viz., these: that the paper is a species of printing rather than of writing paper, and the copy-lines and the ruling seem to be printed from metal types rather than from lithographic transfers. The effect of this, and the heavy printed ruling, is to deface the bottom formations of the copylines, and to give a smeared aspect to the page. The formation of some of the capital letters of the series, moreover, can scarcely be considered artistic. The books, however, have some features of excellence; the rules for the pupil, for instance, printed in the case of the early numbers, at the top of each page, being admirable; but we fear that American and native enterprise, in Copy Book manufacture, leave but a faint chance of the series meeting with favour on this side the Atlantic, whatever may be their reception on the other.

The Temperance Lesson Book, by B. W. Richardson, M.D., LL.D., F.R.S. London: W. Tweedie & Co., 1879. This is a capital little collection of lessons, designed for reading in schools and families, on "Alcohol and its action on the System," prepared by one of the foremost physiologists of the day, at the instance of a committee of the National Temperance League of England. The assumption made by the author is, that people are intemperate from ignorance, and indulge in stimulants not knowing the properties of alcoholic drinks, nor their physiological action on the system. In a series of clear and most instructive lessons, over fifty in number, the chemical action of alcohol is explained, and its injurious and frequently fatal effect on the system demonstrated, each lesson winding up with a number of questions on the subject of the chapter which impresses the information imparted in an effective way. As a manual for Temperance Clubs, and a popular science text-book for home reading, this little work is deserving of wide-spread circulation.

Manual of Method. By A. Park. London: Blackie & Son. Toronto: James Campbell & Son. The examination of this little book has given us much satisfaction. It is written by one who has had a great deal to do with the training of teachers in the subjects that form the daily routine of school-room work, and who is a good exemplification of Solomon's remark, "The wise man's eyes are in his head." Written for the use of Pupil Teachers and Assistant Masters in Britain, it is the best book we have yet met with to put into the hands of students-in-training in this country. The "Hints" are its most valuable feature; these are always practical, and, what is far more important to the young teacher, *practicable*. They are in most cases accompanied by explanatory remarks, in which the author gives the reader the benefit of his own extended experience. He is not always careful, however, to see that a new subject is put in the easiest way before children. It is now an accepted truth in education, that we should with children proceed from the concrete to

the abstract; from the particular to the general. In explaining such terms as *singular* and *plural*, therefore, we should lead up to the definitions by copious examples of individual words, and if possible let the children themselves make their own definitions, which could easily be rounded into shape by the teacher. Mr. Park's plan, however, is first to explain the terms, and then let the children exemplify them with words of their own. His admirable models of object-lessons would have served their purpose better had they been upon subjects more within children's ken than The Mole, and Nail Making. These are but trifling faults in a book of such sterling merit. It well deserves to be called a Manual, for in addition to its convenient size, it is interleaved with stout closely-ruled paper for notes. We have no hesitation in commending it as a useful aid to those who are preparing to enter upon the arduous profession of teaching.

Messrs. Willing and Williamson, Toronto, have just issued, in neat pocket form, a new revised edition of the First Book of Ovid's "Fasti," with English notes, by F. A. Paley, M.A., and others. The work appears in a series, entitled "Canadian Collegiate Classics," and possesses that useful appendage to a student's text-book, a good vocabulary.

That the study of English is being pursued with increasing avidity, even in Canada, is evidenced in the native publication of a little manual, entitled, "The Elements of English Etymology for the use of Public and High Schools," by J. W. Connor, B.A., Head Master of the Berlin High School (Toronto: Wm. Warwick). Unfortunately the work only reaches us as we go to press, and we are therefore obliged to postpone notice of it until our next number. This much we can at present say, however, that Mr. Connor's reputation as a critical student of the language, should secure interested attention for any work he may prepare for the use of schools or the profession.

From Messrs Harper Bros., New York, we are in receipt of a new revised edition of a favourite work, "English Synonyms explained in alphabetical order, with copious illustrations and examples, drawn from the best writers," by George Crabbe, M.A. The new edition is enriched with an ample index, and is otherwise largely improved. From the author, issued by the same house, we have an admirable treatise on gymnastics and muscular training, entitled "How to get strong and how to stay so," by William Blaikie, New York. Having closed our review department for the month, we can only acknowledge the receipt of the work here, and meantime warmly recommend it to our readers as an eminently practical manual on physical exercise and drill, which ought to be in the hands of all trainers of youth.

WE are in receipt, from the Government Printer, of the annual report of the Ontario Institution for the Education of the Blind, at Brantford. Its contents are mainly made up of the elaborate report of the Principal, Mr. J. Howard Hunter, M.A., whose hearty and intelligent labours in behalf of the Institution and its afflicted inmates are worthy of all praise. The portion of the report dealing with the appliances for the literary, musical, and industrial instruction of the pupils is exceedingly interesting, and calls for one's active sympathies in Principal Hunter's humane work.

From the author, the Rev. Principal McVicar, of the Presbyterian College, Montreal, we are in receipt of an Elementary School Manual, entitled, "A Primary Arithmetic" (Montreal: Dawson Brothers), which possesses many of the simple attractive features of the American text-books on arithmetic for young pupils, somewhat upon the plan of the Kindergarten object-lesson books. The author, we understand, is preparing for early publication a more advanced text-book on the same subject.

EDUCATIONAL JOTTINGS.

THE Annual Convention of the Ontario Teachers' Association is announced to meet

in the Normal School Buildings, Toronto, on the 12th of August, and the programme of proceedings augurs well for an interesting meeting. From the latter we learn that, after the President's address, the following papers will be read, viz.: by Mr. McHenry, of Cobourg, "The Higher Education of Women;" by Dr. M. J. Kelly, of Brantford, "Uniform Examinations for Promotion in Public Schools;" by Prof. Young, "The order of development of the faculties in relation to Education;" by Mr. Inspector Brown, of Peterboro', "Physical Education in School;" by Mr. Inspector Hughes, "Is Compulsory Uniformity in Text Books desirable?" to conclude with a lecture by Principal McVicar, of Montreal. In the Public School Section, the following papers will be discussed: "The Utility of Teachers' Associations," "Model School Work," "Recent School Legislation," "Phonic Reading," and "Educational Journals." The Board of Directors of the Association express the hope that local associations will be well represented by delegates at the Convention.

THE Annual Meeting of the Education Society of Eastern Ontario is announced to be held in the Normal School, Ottawa, on the 30th July next, when its proceedings will be opened with the President's Inaugural Address. The following papers are announced to be brought before the meeting, viz.: "Entrance Examinations and High Schools," by Mr. Inspector Glashan; "The Position of the Model School in our Educational System," by Messrs. A. C. Osborne and W. E. Sprague; "Intermediate Examinations and High Schools," by Mr. P. C. McGregor, B.A., Almonte; "Theory of Education as effected by modern advances in knowledge," by Rev. Mr. May; "Music in Schools," by Mr. W. S. Workman; "Influence of Teachers in Training on Model School Pupils," by Mr. W. J. Summerby; "Science in High Schools," by Mr. A. P. Coleman, B.A., Cobourg; "Influence of Model Schools," by Mr. Inspector Steele, etc. The evening lectures will be delivered as

follows: Thursday the 31st, "The Arthurian Legends," by Mr. W. R. Riddell, B.A., LL.B., Ottawa; and on Friday, August 1st, "Psychology in its relation to Education," by the Rev. Prof. Young, M.A., Toronto.

We are glad to notice that in the Estimates passed at the late session of the Dominion Parliament a considerable sum was placed for the encouragement of Military Drill in our Colleges and Collegiate Institutes. We presume the latter term is intended to include the different grades of High Schools. This is a most desirable change, and the Minister of Militia and Defence has earned the thanks of every lover of the volunteer system. There is no good reason why we in Canada should not ultimately adopt a system similar to that in operation in Prussia, and the present experiment cannot fail to prove a successful step in this direction. There are many persons in favour of the proper and

systematic instruction of our young men in Military Drill. In addition to the physical culture they ensure, these exercises will be the means of instilling into the rising generation that feeling of patriotism which the necessary economy of late years has in many places almost destroyed among our young men.

IT WILL be noted in our advertising pages that Mr. Richard Lewis, of Toronto, will form an elocution class for teachers, in the first week of the midsummer holidays, for the purpose of imparting instruction in the cultivation of the voice, with the view to expressive delivery in reading and recitation, etc. This is an opportunity which teachers desirous of gaining some practical knowledge of the art of reading should not overlook, either for their own benefit or for that of the schools. The fee for the course is placed at a very moderate amount.

OFFICIAL NOTICES OF THE DEPARTMENT OF EDUCATION.

EDUCATION DEPARTMENT, ONTARIO.

TORONTO, *April 23rd, 1879.*

ALEX. MARLING, ESQ.,

Secretary, Education Department:

SIR,—

Having been called upon by the Minister of Education to withdraw an advertisement published in *The Canada School Journal*, entitled "Warwick's Authorized Series of School Text Books," as being likely to cause misapprehension as to which are authorized, I have withdrawn such advertisement, and in future my advertisements will specify more clearly what are authorized text books.

Yours respectfully,

(Signed) WM. WARWICK.

EDUCATION DEPARTMENT, ONTARIO.

TORONTO, *April, 1879.*

SIR,—

Having been called upon by the Minister of Education to withdraw an advertisement, in the form of a circular, entitled "Adam Miller & Co.'s List of Text Books, authorized by the Minister of Education, for use in the High and Public Schools in the Province

of Ontario, or recommended for the use of Teachers," with a note at the bottom of the first page of said circular, to the effect that "none of the above works have been authorized for the Province of Ontario, but most of them have been prepared to meet the requirements of students, and are in use in nearly all of our principal Public and High Schools," and also to withdraw a further note upon an English Grammar, by C. P. Mason, to the effect that this edition, termed "Public School Edition," had "been issued at the request of a large number of Public and High School Teachers in Canada who wished to place in the hands of their pupils a Text Book, etc.;" we do hereby withdraw such advertisement, and also undertake to remove such note and title of "Public School Edition," and promise in future advertisements, or in reference to any school book, to distinguish clearly between books authorized for use in the Public and High Schools in the Province of Ontario, and those not so authorized.

We have, &c.,

(Signed) ADAM MILLER & CO.

ALEX. MARLING, ESQ.,

Secretary, Education Department,
Toronto.

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

JULY—AUGUST, 1879.

ON BUCKLE'S THEORY OF HISTORY.

BY FRANCIS RYE, BARRIE.

"There is a mystery in the soul of States
Which hath an operation more divine
Than our mere chroniclers dare meddle
with."*

YEARS have passed by since Buckle first gave to the world his views upon the true method of historical enquiry, and, as yet, no one has been bold enough to take up the task which he began and to push the principles he enunciated to their legitimate conclusion. I propose in this paper to state shortly what his leading views and principles were, to enquire into the sufficiency of some of the grounds upon which his method has been attacked, and to give such a sketch of the plan of his great work as may prove of interest to those who have not had an opportunity of reading it themselves.

The first volume of the "History of Civilization in England" appeared about 1857, and as this struck the key-note of Buckle's system, we may say that his theory has awaited a general acceptance at the hands of the civil-

ized world for nearly a quarter of a century. That key-note consisted in the bold assertion that blind chance baffles itself in attempting to influence the career of nations, baffles itself by continually counteracting and neutralising its own operations, even as the element of uncertainty in tossing up a coin becomes eliminated if we repeat the experiment often enough. But if chance is removed from the equation, as an unimportant and self-cancelling factor, a clear field is evidently left for the manifestation and consequent detection of those widely extended laws which have ever been silently at work, however hidden by the outward drapery, so to speak, of current and unimportant events, the external glitter of which has attracted our attention from the really vital processes of nature that underlie them.

To revert a moment to our illustration. If after a thousand spinings of our penny in the air we found a small, but still a marked, excess in the number of times head came up over the number of times that tail was

* "Troilus and Cressida," Act 3, sc. 3, as altered by Coleridge.

uppermost, we should conclude that there was a reason for this. And searching keenly we might find a reason, either in some slight irregularity in the shape of the coin or in the distribution of the mass of metal between its two surfaces. Enquiring still further, we might find other disturbing elements, and we might be obliged to play off one against the other in order to prove the exact preponderance of "head" over "tail" which we discovered empirically by our thousand tosses.

Mr. Buckle hoped to prove that the actions of mankind, taken on the grand scale and cast into the crucible of history would yield sufficient data from which to construct the great laws that have governed the development and the decline of nations. It is admitted that these actions and their resultant laws are far more complicated than those which govern the gyrations of a penny, but at the same time the field of enquiry is also wider, and although we cannot test our views experimentally, we can check them by asking if the laws we have evolved from the history of one nation hold good (*mutatis mutandis*) when applied to a different race and another epoch. This may be said, shortly, to be the novel view of history propounded by our author.

He intended to have done more than propound it, he hoped to have put it into practice, and to do so in a field of study dear to every Englishman,—the history of civilization in his own native country. It was on this subject, he tells us, that his deepest sympathies were centred, to English literature he acknowledged that he owed his best lessons, and it was the most cherished wish of his heart that it might be given to him to apply his novel principles in elucidating the successive phases of English history. Those who have read the *torso* which is all that remains of his projected

work, can imagine how deeply interesting the completed history would have been. His untimely death frustrated these hopes and left even his introduction incomplete. For it was part of the vast plan of this great scholar to conduct the student through selected eras of French, of Spanish, of Scotch, and of German history, which would lead on his mind to the appointed end as a succession of fair vestibules and noble court-yards lead on the eye to some grand temple or magnificent palace. We were to study in France the evil effects of state patronage upon national literature and science, and the deeply rooted causes of that centralizing or protective spirit which reappears under the most diverse forms of government in that country. In Spain we were called on to see, in the physical conformation of the country, in its early religious wars, and the long struggle which it waged for life with the Moors, the seeds of that predominance of the religious classes which has run its course almost unchecked in that isolated country. Without going over all the ground covered by this introduction I may shortly state that Buckle expected by its means to discover and give *prima facie* evidence of those general laws which he intended to apply, to elaborate, and to illustrate, in the body of his work.

About the middle of his third volume, his heart failed him lest he should have miscalculated his powers. In a touching passage at the close of his third chapter* he owns that the plan he had sketched out for himself must be curtailed. In order to avoid sacrificing the work to its introduction he had to reconcile himself to a slighter construction and a less detailed method of proof. He refers, pathetically, to those earlier days when the field of knowledge, then suddenly re-

* Vol. III., p. 188.

vealed to him, seemed so fair that he aspired not only to cover the surface, but to master the details. That expectation he sorrowfully abandons. Perhaps, too, he thinks, he may have to console himself with the mere honour of vindicating the new principles of historical writing, leaving their application to the maturer studies of succeeding generations. This last thought foreshadowed his fate, for he died at an early age while travelling in Palestine. His enemies scoffed at the inveterate doubter's journey to the Holy Places; but he had more of the spirit of the Crusaders than they would fain allow. The energy and the chivalrous love of combat that led so many to die near the same spot burned in him too, and that deep faith which would seem, at first sight, to be wanting in his character, really drove him onwards with an overwhelming influence; but the object of that faith was not religious dogma, it was directed towards the reign of harmony and law in the affairs of men no less than in the inorganic world of chemistry. This belief was his creed, it edged his blade and nerved his arm, and to it he paid a devotion as sincere as ever Our Lady of Succours received from belted knight or monk of the order of Jesus.

The principles which Buckle conceived he had demonstrated may be shortly stated as follows:—Physical agents, such as climate, food, and soil, exercise an influence over the accumulation and distribution of wealth. A more intangible influence is exercised by the general aspect of nature, its earthquakes, tempests, pestilences and famines, upon the understanding and imagination of mankind, but this latter influence has not been powerful enough in most European countries to develop the imagination to that morbid extent which was attained in many of the extra-European civilizations. I will pause here for a moment to remark that much criticism has been

directed with the view of ridiculing the idea that the aspect of nature is a factor in the formation of national character. It would occupy too much space to go into this controversy at length, but I will give two instances which occur to me at the moment in which men of widely differing views, and neither of whom were in any way disciples of Buckle, have, unconsciously perhaps, ratified and illustrated his conclusions on this head. The first is M. Taine, who has devoted much of the opening part of his "History of English Literature" to the enunciation of the theory that our national poetry and prose owes much of its present form to the peculiar climate and scenery among which our early poets found themselves. Their damp, cloudy skies, their lush water meadows, heavy with dew, their deep forests full of a perpetually green vegetation, almost sodden with moisture,—the short, joyous English summer, the long, dreary English winter,—provocative of love for home and fireside pleasures, the effects of all these M. Taine thinks can be detected even in our modern poetry. Clearly he thinks the aspects of nature have done much to make us what we are now. The other authority I will quote is Lord Beaconsfield, who, in a speech delivered in Parliament during the debates on the Irish Church question, in alluding to the mental and moral peculiarities of the Irish as a people, accounted for some of them by the fact that Ireland was surrounded by a "melancholy ocean." This was not argument, but merely one of his Lordship's happy epithets; we may however see from the fact of his using it how deeply rooted is the notion that our local surroundings *do* tell upon us. If I were to trace this thought through general literature and show how Wordsworth has sung of one who lived near a waterfall, that
"Beauty born of murmuring sound did pass
into her face,"

and how the grand old Grecian myths told the same tale, I should be allowing this digression to run away with me, and will therefore pause while there is yet time.

The next great rule is that, in Europe at least, mental laws are more powerful than physical laws in moulding the fates of nations. Consequently our first study must be the operation of the mental laws, and we must consider the others as merely subsidiary or conflicting and disturbing elements. Of mental laws, those which we call intellectual, affording as they do unlimited scope for expansion, are more potent in bringing about a state of civilization than moral laws, which are from their nature hardly capable of progressive improvement.

I have now gone briefly over the great general principles on which Buckle expected not only to explain the past, but to a certain extent to forecast the future: it remains to consider a few of the objections that have been urged against his theory.

I do not number among the objections worthy of an answer that common stigma of infidelity which Buckle had to endure in common with so many other noble minds. But as that reproach may operate to deter many from opening his pages, it is only just that I should point out how falsely it is applied to him. His sentiments towards Christianity may be gathered from his allusions in the chapter on the early causes of the French Revolution to what he calls "the unhappy crusade against Christianity" which preceded those times of upheaval. In a noble passage he points out how the abuses of the system might have been cut away while the foundations of Christianity remained intact. While preserving the right to reform a Church as well as other institutions, he says, "we dare not tamper with those great religious truths which are altogether independent of it, truths

which comfort the mind of man, raise him above the instincts of the hour, and infuse into him those lofty aspirations which, revealing to him his own immortality, are the measure and the symptom of a future life."*

It is said, however, and this deserves an answer, that Buckle's theory of necessary laws governing the course of national existence detracts from man's freewill and God's superintending Providence. For the purpose of this argument it will only be fair for us to take it for granted that individual freedom of will *does* exist in some degree, as it would be merely evading the difficulty to take shelter under the Calvinistic doctrine of predestination. But in the first place the objectors are met by this reply, that freedom of will in the unit is perfectly consistent with the subjugation of the group or family to a law. Take a herd of cattle grazing in the meadows, free to go in any direction they please. As the sun rises in the heavens the herd (*as a herd*) will probably have gone to seek shelter under the trees, although a stray cow here or there may prove its independent spirit by wandering in a different course from the rest.

Again, this freedom of will is not absolute. We are all of us aware, for instance, of the force of hereditary influences, how the child of a drunkard may inherit the fatal craving for liquor, how disease, deformity, habits, and even crimes descend no less surely than riches and honours, a truth recognized alike by the prophet who spoke "of the fathers having eaten sour grapes and the children's teeth being set on edge," and by the social poet who passes his laugh and his jest at some

"—tenth transmitter of a foolish face."

* Vol. ii, p. 255. I do not wish to deceive people by leading them to believe from what I have said above that Buckle was an orthodox Christian. His position reminds me more of Shelley's, a dislike of modern Christianity *because* of its dissimilarity to Christ.

Here is at once a limitation, a curb to our free will. The drunkard's child is *not* so free as his schoolfellow to lead a pure and innocent life; it is a harder struggle for him; and though one here and there may have strength enough to endure and to conquer, yet the heavy weight thus imposed upon the offspring of inebriates will throw them as a class out of all hope of success in the great race of this life.

I need not suggest the many other curbs on our free will. We take away from each other and from ourselves large portions of this freedom. If laws are not altogether inoperative, they prevent our indulging in crimes as often as we should otherwise do, therefore our national virtue depends, to some extent, not on the aggregate will of the community, but on the wisdom of the rules it has devised, or which have been devised in former ages, to preserve order and property, and the diligence with which these rules are enforced. These are matters so external to ourselves, and yet they operate so clearly on national character, that to my mind they prove beyond question the position taken by Buckle, that outward circumstances *do* control the life of a people and "shape its ends" without in the least conflicting with the exercise of the qualified free-will such as I have described, on the part of every citizen within its borders.

Individual action, as opposed to the corporate life of a nation, being thus left to a certain degree untrammelled, it is obvious that a field remains for that immediate exercise of a personal superintending Providence over man, the existence of which is believed in by the overwhelming majority of Christians.

But, when we come to the larger dealings of Providence, by which God is supposed to punish, to reward, and to chasten nations, the case is different. Certainly we must concede that

Buckle's theory clashes with the view too commonly taken of this vast superintending and controlling power. It is quite incompatible with the belief that such a Providence is exercised in an irregular manner or with a disproportionate measure; it cannot be held by those who believe that a pestilence may be the appointed punishment of a national crime, which is utterly unconnected with the causes of that pestilence, or that the weather can be altered by fasting and prayer. But while the theory rejects such views of Providence as these, does it not raise our ideas of what God's Providence really is? Is not the conception of law and order the noblest we can form in constructing an ideal government of the universe? Is not it owing to the fact that we, poor weak and foolish mortals, feel cramped and injured by laws, which distress us the more in proportion to the difference between our meanness and their all-embracing wisdom, that we fail to conceive the absolute freedom and happiness of an All-wise God, bound by laws which, being part of Himself, cannot gall or hinder Him, and whose desires can never, even for a moment, be antagonistic to them? So far as we can tell, God works always by such laws. The pestilence warns us to be clean in our bodies and homes. The drought and the famine bid us see to our irrigation systems, natural or artificial, and to clothe once more with high-waving forests the lofty hill-tops which we have too greedily stripped of their timber.

All these laws are teaching us such simple lessons as these if we will but heed them, telling us frankly and plainly what we should do in the plain matters of daily life. "Nature," says Kingsley, "is God's good will expressed in facts." Too often, unfortunately, we refuse to listen to these small clear voices that are sounding all around us; or, rather, with per-

verted ingenuity, we wring from them meanings which their words do not convey. We will not take the simple explanation of God's anger which lies on the surface of the pestilence, we must fain detect a deeper meaning. Perhaps we are angry ourselves at some recent national act, some policy which we, perchance, opposed unsuccessfully, and at once with unparalleled boldness and hypocrisy we seize on the famine or the plague, the inundation or the conflagration, and try to degrade these weapons of God's wrath into our service and to make the Almighty himself a partisan in our petty and ignoble strifes. How often this has been done all readers of history know well. It is to my mind no slight recommendation of the theory under consideration that when it is more widely received such degrading views of God's Providence will gradually die out.

If I were asked what was Buckle's most conspicuous fault as a historian, I should unhesitatingly say, his absence of a complete sympathy with bygone ages, and his being unable to see any good in old forms of thought, which are clearly unfitted to assist the progress of enlightenment. Now this defective sympathy is very destructive to good historical writing. I do not allude merely to the external beauties of narrative, though even there sympathy comes largely into play and (truthfulness being supposed on both sides) everyone would prefer a history of Ireland written by one of Irish race and feelings to a similar history by one of the dominant faction, or a Protestant life of Latimer and Ridley to a Roman Catholic one. But I refer more especially to that insight into the springs and germs of policies, into the aims and real objects of institutions, which is seldom given but to the eye of a loving as well as an intelligent criticism. It is true that Buckle allows to the Church in the

Middle Ages a considerable share of praise for its work in keeping alive some spark of learning, and for preserving some bond of common fellowship between wrangling kings and half barbarous tribes. But when he comes to speak of the literature of that period his condemnation of it is most sweeping. Indeed, to judge from the samples he gives of it, it was beneath contempt and could only serve to harass and clog the human mind in its slow struggle to the light. But had Buckle possessed that gift of sympathy which I have spoken of, he would have recognized the fact that, at one period, at least, those innumerable legends of Saint and Bishop *did* convey a lesson, *did* subserve a moral purpose. I will give a few examples.

When slavery was universal throughout Christendom, how touching to all true hearts must have sounded the tale of the self-inflicted penance of St. Bavon of Ghent, who, having sold a man in chains, sought him out and prayed with bitter tears to be allowed to take his place in prison, there to expiate beneath the lash of the taskmaster the act which he so bitterly regretted.

Or again, there was the true life of St. Germain by Paris, the forerunner of our own Wilberforce, who spent rent and revenue in redeeming fellow-believers from slavery, and who sat at last, mournful and dejected, when he had spent his all, not, mind you, grieving that he himself was left penniless, but because the cries of bondsmen must rise to heaven unanswered.

When coarse and obscene language was on every man's lips, what a true reprimand was contained in an incident in the life of St. Valery, who, travelling on foot in the winter time, stopped to rest, half-frozen, in a priest's house. He tried in vain to check by gentle reproof the idle words of the company, then, turning away

from the shelter and the warmth, chose to face the inclement night rather than listen to their gross and blasphemous discourse. *

One more example must suffice. St. Anselm met a boy in the pleasant Kentish meadows, playing with a bird, which was attached to his wrist by a string. "Ah! I wish thou wert free," exclaimed Anselm, half involuntarily, and straightway (so ran the legend) the bird flew away into the woods.†

Was not this enough to make any man reflect on the sanctity of life and liberty, even among the animal creation, then so grievously oppressed by hawk and hound; all the spare energy of man being centred on forest pleasures, and all his harshness occupied in devising forest laws.

Regarding the early legends in this light we can see that they were calculated to convey moral lessons which could in no other shape have been rendered acceptable to the people, but at the same time we must not forget that in so far as they usurped the place of true historical literature, they deserve all the censure which our author has heaped upon them. Growing up a rank and tangled herbage, they choked not only history, but all forms of literary work, and in many cases were perpetuated on parchments from which the great works of classical authors were expunged for their reception.

I have not attempted to give in this short paper the minor laws which Buckle evolved from his study of the

French, Spanish, and Scotch civilizations. Some of these have been attacked, but as a rule criticism has rather attempted to impugn the illustrations and instances with which he enforced his conclusions, than the soundness of those conclusions themselves. It is probable he may have erred in the application of his own general rules, but the spirit of those rules will, in my opinion, govern the future of historical literature, which, ever pushing onward into the region of science and determinate laws, will abandon that style which loved to linger in Courts and Camps and to picture the rise and fall of nations as dependent upon a favourite's caprice or the accidents of a foughten field.

In that higher, purer atmosphere none but large minds will breathe with pleasure,—but to them, how exalting and mentally invigorating will be the prospect! Nor need smaller capacities complain, for, far below those glittering heights, rose-red in the flush of morning, there will be ample space left for the petty crowd, who will find in their memoirs, chronicles, court calendars, genealogies, and Dryasdust biographies a congenial field for the exercise of their feeble capacities. No longer usurping the place of history, these minor studies will at once take up their true position as its feeders and gazetteers, and, with an irony not unfrequently seen in events, will furnish materials for those wider generalizations by which they themselves are doomed to be superseded.

* Guizot's "History of Civilization in France," vol. ii. (Bogue's Edition—Lecture 17, where the above examples will be found).

† Vide Eadmer's *Life of Anselm*, or Berington's "Literary History of the Middle Ages," p. 176.

THE MORAL DISCIPLINE OF THE SCHOOL.

BY RICHARD LEWIS, HEAD-MASTER, DUFFERIN SCHOOL, TORONTO.

THE education of a human being presents itself in a three-fold aspect. Man is an animal, subject to the influences of physical laws; he is a rational being with capacities and necessities for mental culture and development; and he is a moral being, endowed with conscience and governed by laws of duty to himself and his fellow man, which he cannot transgress without incurring penalties. Each of these capacities is so distinct from the other, that one may be cultivated to a very large and almost undefinable extent without regard to the other, although the three are necessary to the full development of the perfect man. I do not deny the presence and the supreme claims of a fourth characteristic—the religious. But although it is common to assert that the moral may flourish without the religious, I prefer to accept the fuller and higher view that there can be no true religion without the highest morality, and that he who is faithful in the highest sense to the moral impulses of his nature and the behests of conscience, is indisputably a religious being.

Now education as it is passing through experiments and becoming moulded into the fashion of an Art, is taking full cognizance of the two aspects, the animal and the intellectual. For securing the first, every consideration is paid to the claims of the body. Ventilation of school rooms, exercises for muscular develop-

ment and general health, whatever is considered necessary to good health, receives more or less attention, and advances its claims in the economy of school government. For the development of mind, methods are still more advanced. Never before was such activity, such thoughtfulness, and so much invention manifested. In this regard—the cultivation of the mind by methods of instruction, study, books, and other appliances—education is fast rising to the dignity and safety of a systematized art. Much of this is no doubt due to the fact that mental proficiency, success in study, pays best. It pays the student best as it wins him distinction and substantial rewards, and it pays the teacher best, as his professional reputation depends chiefly on this kind of success. Society has not yet attained the wisdom of regarding the moral culture of the pupil as the highest and final object of all education.

But I must be understood in making that accusation. Does any national school system sanction in any form falsehood, vice, or irreligion? Of course it does not. If we take this Province as an illustration, we know that all school authorities unanimously enjoin the supreme claims of morality and religion. Nay, the school is in many respects in advance of society in its careful regard for propriety of conduct, and those external acts by which the sovereignty and providence of God are acknowledged; and though

bigotry may libel our public schools as Godless, I have no hesitation in saying that in all the external forms of morality and religious reverence they will bear honourable comparison with the best governed families and the most austere of the churches.

But it is the absence of method in the moral training of the pupils which chiefly marks school government. Systems of literary and scientific training are assuming form and permanency. If you take arithmetic or grammar, for example, you will find every teacher in the land following very similar methods, and these, improved by experience, produce the best results. There is system, and little is left to the waywardness of fancy or the uncertainties of temperament. But examine how any two teachers secure diligence in study, respect for authority, truthfulness, courtesy, and manliness of character, and you will find that all that lies outside of intellectual training, and all that lies in the province of morality and religion is uncertain and dependent on the views and character of the teacher. He may be in character and practice an Arnold, and regard the moral and spiritual training of his pupils as his highest responsibility. But the probability is that the claims of mental culture under the pressure of competition, whether in high or public school, will be supreme, and that the moral discipline generally amounts to nothing beyond occasional counsels and rebukes, hastily given, often under irritation, and that corporal punishment is regarded as the quickest and best remedy for all moral disease.

Probably the grand mistake, in many instances, is to believe that the moral culture of the pupil means suppression, not development. That is the principle that guides jail discipline, and it cannot be denied that as it is apparently the easiest method it too often marks the school discipline. It is the

easiest and quickest mode of getting rid of the difficulty. It owes its success to the fear of pain; and because it is the quickest way to put down disorder or misconduct of any kind, it is always in favour with teachers who have no high conception of the moral culture of their pupils, or who are only anxious for success in the intellectual contests.

The school discipline is the preparation for the future life of the pupil; and in many respects it is the most important discipline which he can receive. The home discipline is uncertain and incompetent. The discipline and teachings of the Church in a human point of view can do little beyond the creation and maintenance of religious habits; and the habits are in danger of lapsing into mere formalism, because the judgment is not ripe to appreciate them. The Sabbath-school is a better agency for moral culture; but there the attendance of pupils is uncertain, the influence of the teacher comparatively weak, and the time given to instruction bears no comparison with that of the day-school. It is however urged in behalf of the Church and the Sabbath-school that their ministrations and teachings are sacred and blessed of God. But why may we not claim for the day-school all that is claimed for the Church and the Sabbath-school? The culture of an immortal being—body, mind, and soul—is its final purpose, and this culture in its moral and spiritual aspects—outside the limits of denominational theology—is sacred and susceptible to divine influences, and equally subject to divine regard. It is herein I apprehend that the great mistake is made. Parents and teachers have been so impressed by this view: that the Church and the Sabbath-school were sufficient for moral and spiritual culture, and the day-school had no other vocation than that of fitting the pupil for the material business

of life, that the day-school teachers who have such manifold opportunities of knowing their power as agents for the higher culture have been misled by public opinion, and have made success in studies, which means success in life the highest object of their vocation. Let it not be suspected for a moment that I am here pleading for the re-institution of denominational theology in the programme of the day-school. I hold that the school-room, in its freedom from denominational partisanship and prejudices, in its grand aspect of Christian liberty and unity, is the most hopeful fountain and nursery of Christian charity and beneficence. All that I urge is that the principle and sense of DUTY, in its largest and divinest spirit, shall pervade the whole discipline of the school. There is a success in life which is the success of life—higher, deeper, reaching infinitely further, than all the success which may arise out of mental culture. Society, with all its material successes, industrial power, wealth, defences of law, and ecclesiastical organizations, is baffled and almost conquered by the counter-influences of vice in every form, commercial and political corruption, dishonour in the high, and ignorance and brutal crime in the low places. I urge that we have left the remedy more to chance and expected too much from the ecclesiastical organizations, and have overlooked in moral and spiritual training what we have fully accomplished for intellectual culture in the education of the day-school.

It is held in theory that the teacher takes the place of the parent, and in the punitive aspect society accepts and the law sanctions the arrangement. But it is as the moral agent that the teacher has the best claim to the title. The imperfect education of parents too often utterly unfits them for this highest office. They are governed by their affections; they indulge, or they restrain and punish, from mere animal

feeling and not from a sound principle. It is in this relation that the intelligent and conscientious teacher becomes the necessary and the best substitute for the parent. He is free from the control of mere parental affection, and when qualified by education and a high sense of his work, which it is as possible to secure in the school teacher as in the clergyman, his office and his power embrace the functions and responsibilities of parent and pastor. Without the necessity for formal lectures on duty or homilies on theological doctrine, the discipline of the school-room, pervaded by, and ever made subordinate, to the obligation of the moral advancement of the pupil, will become a new ally on the side of virtue and religion of whose issues we have had no experience yet because we have had no faith in its power. When we begin to practise what we delight to sing, that "just as the twig is bent the tree is inclined," that the first battle with vice or crime, sensuality, fraud, and disloyalty in every form to virtue and religion must begin in the school-room, then shall we reap the holiest fruits of national education.

It is not my purpose nor is it within my ability to suggest methods. They must spring out of the strongest conviction that the moral discipline of the school-room is its greatest work, and that conviction can only produce the highest results when it is the supreme motive in the labours of the school teacher. The character of the school and of the teacher is now decided altogether by their intellectual achievements. If the teacher can secure order and intellectual progress, that will satisfy public demands. Hence, whatever is not seen in moral depravity is in danger of being disregarded. The success of moral discipline lies altogether in the deep moral consciousness of its supreme claims in the mind of the teacher. But that moral conscious-

ness may be awakened and sustained by a change in public opinion. The teacher who has the courage and the self-denial to make the intellectual progress of his pupils subordinate to their moral culture cannot fail to strengthen this faith. But public opinion must exalt the office by its reverence for the highest work. When teachers feel that their moral discipline and counsels are held by parents in as high esteem as the instructions of the church ; when society attaches

to their moral guidance the same regard that it now attaches to the professional opinions and practice of the lawyer, the doctor, or the clergyman, then the teacher will comprehend the true dignity of his office, and no office to him will be higher than his own, because his convictions and public opinion will assure him that no work can do more for the moral and spiritual advancement of mankind than the work of the day-school.

LETTERS ON THE EDUCATION AND EMPLOYMENT OF WOMEN.

BY AGNODICE.

LETTER III.

DEAR CLYTE,—In my last letter to you I mentioned a picture I had seen some years ago at the Royal Academy ; since writing I have come across another, which I cannot forbear describing to you. It was by no means so pretentious as the first, being only an indifferently executed piece, representing a young and pretty woman, though rather of the namby-pamby type, leaning against a horse, while some hounds were depicted in contemplative attitudes gazing up into her face. So far, so good. I have certainly no right, nor do I wish to object, to any artist painting a graceful woman surrounded by any number of pet animals, but it was the title of the picture that particularly annoyed me. It was called "My wife, my horse, my dogs." I must own to you, Clyte, that at first I felt angry enough to wish that the young wife had had sufficient spirit (which by her expres-

sion she certainly had not) to have insisted on a companion picture being painted, to be entitled, "My husband, my bonnet, my boots." I say my first feeling was one of indignant anger, but this was soon replaced by a deeper sentiment and I passed on to a train of thought as to the manner in which the generality of men view the subject of the advancement of women.

It is a truth, though a sad one, that we have not many men on our side. Their number is small because at present only those who are really unselfish take an interest in the movement ; men whose souls are greater than their bodies, who can bear the thought of losing a little creature-worship with equanimity. Such men, disdaining to be looked up to merely on account of their manhood, will receive their due reward by the respect they will gain as individuals. Abhorring to be regarded as lords and masters by their equals, they will reap a benefit by obtaining the friendship and sympathy of cultured women.

And this friendly sympathy will be the more valuable on account of the constant approximation we may expect to see in the intellectual powers of the sexes, until at last man and woman will differ only as one man now differs from another, owing to the accidents of environment and education. The thoughtful man and woman will then be able to enter into companionships which will be as helpful to the one as to the other, and in which, while she as well as he will prove for "contemplation formed," she will also be able to "soothe him with her finer fancy, touch him with her lighter thought."

Alas, that such men should be so scarce! The usual run of men give but little thought at all to the subject, and when it is brought up in the course of conversation, insult us by their common-places, their hackneyed expressions, and attempts to make the whole thing appear ridiculous.

When they consider the matter at all they begin to suspect that it only means a certain amount of renunciation on their part with no ostensible compensation. Speak to an ordinary man of a woman who reads and thinks, and by some unaccountable method he translates the reading and thinking into a neglect of all house-keeping duties, endless cold meat without pickles, shirts without buttons, socks with holes, and the continual absence from home of the mistress of the family. I have seen it somewhere written that Charles Dickens has much to answer for with regard to the opinions held by many men of clever women. I sincerely hope that he is guiltless in the affair, for Mrs. Jellyby is so amusing one would regret very much if she had done any harm. And if men have been so indiscriminating as to mistake a character like hers for that of the genuine intellectual woman, let us hope that on the other hand Mrs. Jellyby has made many women with erroneous ideas of their duties,

not only ashamed of themselves, but more ready to walk in the path immediately before them.

When will men, and women too, understand that the smallest details of home-life need never be neglected because they are not all-absorbing? Does any one consider it absolutely necessary for a man to leave his clerks entirely to their own devices, and neglect every minutia of office routine as he rises in his profession and takes larger and more powerful views of things? As a rule the more important a man's work is, the more careful he is about every detail, and why may we not expect the same in an educated woman?

We are continually being told that the matter is entirely in our own hands, and that we must "work out our own salvation." I cannot think that this is altogether the case.

For centuries man has ruled and woman has submitted, until it has become an understood thing that women must always hold an inferior position in whatever branch of learning or industry they aspire to. Now, when we begin to know our harness, and to believe that we are capable of achieving something, and when, moreover, we can point to women who have already done great things, we are informed that all this accumulated mass of prejudice and selfishness must be overturned by our own hands, that we alone must

"Fan and winnow from the coming step of
time

All chaff of custom,"

while those who have brought things to this pass look on in scorn or indifference.

I do not wish you to suppose for an instant that I have not great faith in the belief that much, a great deal more than is usually supposed, can be done by the women themselves, but I must say that until men, who at present hold all the interest and authority,

exert themselves in our behalf the progress of our movement must necessarily be slow.

How can we then, having so few willing to help us, sufficiently appreciate that one who above all others made our interests his own, fought for us in Parliament and in print, and showed us what we may do and what we are capable of attempting. In his life, when he spoke for us and to us, he removed mountains, he made many men view the subject in its simplicity apart from their private interests and individual views, and he pointed out to us the immense field of usefulness that lay open ready for our energies and skill. Liberty of thought, of speech, of action; liberty for all, was what he strove for; liberty in its truest and purest sense, not confining himself to that narrow interpretation of the word which is contented with the acquisition of a suffrage however deeply based or widely extended.

Let us then as the women of to-day, remembering the position of women in the past, and looking forward with hope to their place in the future—let us ever honour and revere the name of John Stuart Mill.

We not unfrequently hear from some who would flatter us back into a state of quiescence, that we are “so very nice” that it would be a pity to alter ourselves in any way; why not remain as we are? But unfortunately, even if we wished such a thing, it is not in our power to keep long in one “stay;” we must by a law of Nature go backwards or forwards. No one for one moment could recommend the former course, and if there should exist one single individual so lost to all sense of shame, let me advise that person instantly to procure a copy of Kingsley’s “Water Babies,” and to study thoughtfully the dreadful condition of those benighted people who freely chose to go and live in the land of Ready-made instead of the

country of Hard-work. Let them ponder the awful consequences which arose therefrom, and the horrible *finale*, where the sole remaining inhabitant could only climb a tree (when he was mistaken for a specimen of the Troglodytes by some adventurous traveller,) and sob out “boo-hoo, boo-hoo,” though what he meant to say was,—“Am I not a man and a brother?”—but, alas, he had lost all power of speech through want of use and so came to a dismal end. After this there can be no voice of exception in the cry of Onward!

“Where soil is, men grow,
Whether to weeds or flowers.”

Why should we grow as weeds when we have before us the prospect of being health-giving, food-supplying plants?

I lay so much stress upon the fact that men are not helping women in their movement, because at present almost all employments are exclusively confined to them, and nearly all the professions are closed to us. Until our legislators and voters feel the necessity of allowing women a fair field for their talents, all we do and strive for will avail us little. We may endeavour to fit ourselves for the bar, or the church, or to study the science of medicine, or the art of designing, but at present we can go no further than prepare ourselves for these vocations, bidding our time till we can practise in an authorized way. Do not, my dear Clyte, do not, I beseech you, exercise your lively imagination by depicting girls fresh from school in gowns and bands, or poking over bones, or designing Gothic halls. You know quite well that I do not mean that kind of thing at all, and that I am as fully aware as you are of the fact that in the present state of society it would appear unseemly for women to enter actively into any of the professions I have mentioned. Education is want-

ed by the age no less than by ourselves, and then perhaps by and by we may hope to see some fruits of our toil and pains. Of course it will be the old story of "one must sow and another will reap;" but what of that? Let us who are awake now rejoice that our eyes are opened, and work on patiently and perseveringly while we have strength and life.

In another generation we trust women will not be ashamed to own that they have aspirations and desires beyond the "daily round of their common task." The Agnodices of that day will act and work in their own character.

You have not forgotten, I hope, the story of my namesake—a young Athenian maiden, the daughter of a great physician, who from taking an intense interest in all that her father did, came at last to entertain the wish to study the science of physiology with him for her teacher. Her enthusiasm helped her to make great progress in her studies, her natural common-sense (a quality, I believe, ascribed more particularly to women), her tact, and her delicacy of perception soon raised her to a considerable height in her profession.

She determined to practise as a doctor. Imagine her position if you can. Recollect that the women of Athens never left their homes, that their apartments looked into an inner court, that they knew and heard nothing of the outside world, only going abroad to swell a religious procession or attend a funeral. Their time was wholly employed in embroidery, spinning, and in household affairs. Their sole companions were their children and their slaves. Think of Agnodice braving all her innate prejudices, donning the doctor's gown, and going out into public life. Her practice was immense, her fame great; everyone was talking of her wonderful skill and keen insight, though no one

ever suspected her sex. When she was called in to attend a sick person, she confessed her disguise by the bedside of her patient before she undertook the case, and for some time her secret was faithfully kept. But at last somehow or other it leaked out and she was discovered. I am glad to be able to bring the anecdote to a happy termination by adding that in consequence of her success in her profession, she was permitted to continue practising, and enjoyed besides the advantage of being an acknowledged physician.

Many of the arguments urged against fuller employment for women are based upon the position that women hold now. Women are too frivolous, too much given to detail, too diffuse and wordy, to attend to anything serious. They fritter away and squander their talents by confining themselves to small things and contenting themselves with small aims. They are too fond of the precept, "here a little, and there a little." Our answer is—only let us try what we can do when we endeavour to concentrate our minds upon a given subject, when we have been taught the value of habitual attention and the conservation of energy. When we are allowed some thing to interest us of a higher order of things than new bonnets or lawn tennis, it is not presumption to say the old charge of idleness and levity will be exploded. Only open to us the professions, and let us see what we can do.

What old Fuller said many years ago will fit us admirably now—

"The study of physic giveth wealth; the study of law giveth honours; when high birth and beauty are compelled to go on foot. To prevent such foot-travelling it is good to be mounted on a gainful vocation, to carry one out of the mire on all occasions."

Your sincere friend,

AGNODICE.

ENGLISH PROSODY AND THE NATIONAL READERS.

BY JAS. H. KNIGHT, INSPECTOR PUBLIC SCHOOLS, LINDSAY.

MY object in the present paper is to offer some suggestions which may assist the profession in teaching the Reading of Poetry. To do this satisfactorily it is very necessary to understand the principles upon which verse is constructed. All poetry is based upon some form, and although the varieties are almost endless, a careful examination of a few of them will enable us to analyze every possible form which can be adopted. At the same time it may be laid down that no composition of any length adheres strictly to its adopted model, but is marked by irregularities which also require a careful study. These irregularities are by no means to be regarded as faults, as they often add life and vigour to what would otherwise be tame and insipid. In the metrical analysis of a poem, then, we have first to find out the model on which it is based, and then to examine how far it comes up to its standard, and to what extent it deviates therefrom.

The component parts which enter into the construction of verse are syllables, feet, lines, and stanzas.

Syllables in Prosody are generally equivalent to those in Etymology, but there are some exceptions. For instance, in Etymology, *Assyrian** is a word of four syllables, while metrically

it has but three. Israel* may have two or three syllables. Salvation† may have three or four. Syllables are either accented or unaccented. Dissyllables generally follow the ordinary rules. Trisyllables and polysyllables have often an additional accent, as in

"It wás a fámous vic-to-ry."

—Bk. IV., p. 180.

and in

"Lord ! Thou dids't love Je-rú-sa-lém."

—Bk. IV., p. 339.

Some monosyllables are always accented, others invariably unaccented, while a few are common, that is, sometimes they are accented, and at other times they are unaccented, according to their relation to the words which precede and follow them.

Feet are groups of syllables, and are of different kinds, according to the number and order of the accented and unaccented syllables. In English Prosody the feet differ from those in the Greek and Latin classics, inasmuch as in the latter the foot is determined by long and short syllables, while in the former it is regulated by accent. Though the difference between quantity and accent is great,

* "When Is-ra-el, of the Lord below'd."—*Scott*. Bk. VI., p. 19.

† "Is-ra-el in ancient days."—*Cowper*.

"Fallen is thy throne, O Is-ra-el."—*Moore*. Bk. IV., p. 339.

† "Sal-va-tion, O ! the joyful sound."—*Watts*.

"A joyful noise make to the Rock
Of our sal-va-tion."

—Psalm XCV., Scotch version.

* "The As-syr-ian came down like a wolf on the fold."—*Byron*. Bk. IV., p. 291.

as is also the method of construction of the two kinds of verse, the resemblance is sufficient to warrant most writers in adopting the classical names for the feet employed in English, both for reading and in the adaptation of words to music. Feet differ from bars or measures in music, for while the first beat in a bar of music is *always accented*, the first syllable in a foot may or may not be so, according to its character.

Lines are groups of syllables or feet, usually written or printed in the same horizontal row. Two lines are sometimes printed as one. They are variously named, according to the number of syllables or feet they contain.

Stanzas are groups of consecutive lines. They are not an essential part of verse, as many poems are not thus divided.

Stanzas are frequently, but incorrectly, called verses. The word verse is derived from *versus*, a part of the Latin verb *verto*, I turn, and signifies a turning from one side to the other. In the Jewish Temple service the Psalms of David were sung by the Levites, divided into companies, who alternately sang and listened, so that the music turned from side to side, each portion between the turns being called a verse. The word "verse" is still used thus in Cathedral music. A Full Anthem is one in which the whole choir sing throughout, while that in which certain parts are assigned to individual singers, who sing in turn with the chorus, is called a Verse Anthem. In classical writing the terms verse and line are synonymous.

In illustrating my remarks I shall quote, whenever practicable, from the Authorized Reading Books, with which I presume my readers are all familiar. Occasionally, however, it will be necessary for me to draw from other sources.

The most common foot in English Poetry is the *Iambus*, consisting of

two syllables, the first unaccented and the second accented. Irregularities are more numerous in iambic verse than when any other foot is employed. One of the most regular examples of iambic poetry is the favourite Irish melody by Thomas Moore.

"The Hárp | that ónce | through Tá | ra's halls

The sóul | of mú | sic shéd,
Now hángs | as múte | on Tá | ra's walls
As if | that sóul | were fléd."

In the above extract, the vertical strokes divide the verse into feet of two syllables each, the second in every foot being marked with an accent. The reader will observe that in poetry of this metre the first and third lines contain four feet each, and the second and fourth lines three feet each. He will also observe that the last syllable of the first line rhymes with the last of the third line, and the last syllable of the second line with the last of the fourth. In printing, it is usual to indent the second and fourth lines.

This is the measure employed in most of the old English Ballads, and in many of the metrical versions of the Psalms. It is often called *Common Metre*. Usually it is divided into stanzas of four or eight lines, but occasionally there are six or twelve lines. Sometimes two lines are printed as one, in which case four lines are equal to eight, as usually printed.

The Reading Books contain many specimens of this metre. I can only quote the first lines of a few, for example, in the Third Reader:

"It was the schooner Hesperus." p. 38.
"The boy stood on the burning deck." p. 78.
"A wet sheet and a flowing sea." p. 197.
and "John Gilpin was a citizen." p. 304.

In the Fourth Reader :

"The warrior bow'd his crested head." p. 242.
"When God of old came down from heaven." p. 351.

"They grew in beauty side by side." p. 365.
And in the Fifth Reader:

"From Blois to Senlis, wave by wave." p. 113.

In distinguishing the different metres it is more common to count the syllables than the feet. The above metre would be designated 8, 6, 8, 6, iambic, meaning that the first and third lines contain eight syllables, and the second and fourth lines six syllables each, and that all the feet are iambs.

Next in importance is the *Long Metre*, or 8, 8, 8, 8, iambic, each line containing four feet. Sometimes the first line rhymes with the third, and the second with the fourth. This we call alternate rhyme, as in

"When Is | rael of | the Lord | be- loved
Out from | the land | of bon | dage came,
Her fa | ther's God | before | her moved,
An aw | ful guide, | in smoke | and flame."

And

"O God, whose thunder shakes the sky,"

in the Advanced Reader, pp. 19 and 95; or the rhyme is between consecutive lines, as in

"The spacious firmament on high,"

in the Third Reader, p. 165,

"The turf shall be my fragrant shrine,"

in the Fifth Reader, p. 382, and

"God of my life, to Thee I call,"

in the Advanced Reader, p. 86. Occasionally the first three lines rhyme together, as in Campbell's "Hohenlinden," Bk. III., p. 276 :

"On Linden, when the sun was low,
All bloodless lay the untrodden snow;
And dark as winter was the flow
Of Iser, rolling rapid-ly."

The final syllable of the first stanza rhymes with the final syllable of every other stanza except with that of the last. In the "Hymn of the Hebrew Maid," above quoted, it will be observed that in the second line, the first syllable is accented instead of the second, a very common irregularity in iambic poetry. This metre is often employed without

the use of stanzas in descriptive poetry, as in the narrative parts of the "Lady of the Lake," and the "Lay of the Last Minstrel." The rhyme is consecutive, but occasionally three lines rhyme together instead of two. In such a case the three lines are called a *triplet*. Two consecutive lines which rhyme are called a *couplet*.

The stanza sometimes contains six lines instead of four or eight, as on page 41 of the Advanced Reader. In reading this, care should be taken not to use the falling inflection at the end of the fourth line :

"How sleep the brave who sink to rest }
By all their country's wishes blest }

When spring, with dewy fingers cold }
Returns to deck their hallow'd mould }

She there shall dress a sweeter sod }
Than fancy's feet have ever trod."

It will be observed that this stanza consists of three couplets. Another variety is that in which the first four lines rhyme alternately and the fifth and sixth lines form a couplet, as in No. 344 of Wesley's Hymns :

"Thou hidden love of God whose height."

A third variety consists of two triplets, as in Hymn 134 "Ancient and Modern" :

"O God of life whose power benign."

In the fourth variety the first and second lines form a couplet, as do also the fourth and fifth lines, the third and sixth lines rhyming. The versions of the 113th Psalm by Tate and Brady, and by Dr. Watts, are examples. As the sense of the words always agrees with the grouping of the lines, as shewn by the order of the rhymes, in compositions adapted for singing, it is evident that in selecting music for any of these varieties of stanza, care should be taken to have the right tune for the hymn. But while there are four varieties of words, there are only two varie-

ties of tune; in the first and second varieties, the close, or partial close, occurring at the end of the second and fourth lines, and in the third and fourth varieties, at the end of the third line.

Next we come to what is known as *Pentameter* verse, or 10, 10, 10, 10, iambic. Each line contains five feet. This is the metre of Gray's "Elegy," in which the rhyme is alternate. The "Epitaph" is familiar to all.

"Here résts | his héad | upón | the lap' | of
earth,

A yóuth | to fôr | tune a'nd | to fâme—
unknown;

Fair scí | ence frôwn'd | not ón | his
húm | ble birth,

And mé | an-cho | ly ma'rk'd | him fô'r
| her ówn."

The well known hymn,

"Abide with me, fast falls the eventide,"

is in couplets. Goldsmith adopts this metre for his "Traveller" and "Deserted Village," but they are not in stanzas. When the rhyme is omitted it is called *Blank Verse*, as in

"Be wise to-day, 'tis madness to defer." p.
393,

"I would not enter on my list of friends."
p. 394,

and in the various selections from Shakespeare in the Fifth Reader.

The "Address to an Egyptian Mummy," Bk. V., p. 6, is a modification of this metre. The stanza consists of six lines, but the last foot of some of the lines is an *Amphibrach* instead of an Iambus. The Amphibrach is a foot of three syllables, the first and third unaccented, and the second accented. In the first stanza of the Address, the Amphibrachs are at the end of the 1st, 3rd, 5th, and 6th lines, as will be observed:

"And thou | hast walk'd | about, | how
strange | a story!

In Thebes | 's streets | three thou- | sand
years | a- ga,

When the | Memno- | nium was | in all | its
glory,

And time | had not | begun | to o- | ver
throw
Those tem- | ples, pal- | aces, | and piles |
stu- pendous,
Of which | the ve- | ry ru- | ins are | tre-
mendous!"

The ninth stanza has an amphibrach at the end of every line, the eleventh has none. All the other stanzas are irregular.

Next we come to the *Hexameter* verse of 12, 12, 12, 12, iambic, as in the "Death of Leonidas," Bk. V. p. 27, or 6, 6, 6, 6, as in "Come to the sunset tree," Bk. III., p. 50. Two lines of the latter are equal to one of the former. Both of these selections are irregular, having an extra unaccented syllable in some of the feet.

All other iambic metres are a modification of some of the foregoing. Byron's "Apostrophe to the Ocean," Bk. IV., p. 252, consists of eight lines of ten syllables, followed by one line of twelve syllables, thus, 10, 10, 10, 10, 10, 10, 10, 10, 12.

"Roll on, thou deep and dark blue Ocean
—roll!

Ten thousand fleets sweep over thee in vain;
Man marks the earth with ruin—his con-trol
Stops with the shore; upon the watery plain
The wrecks are all thy deed, nor doth re-
main

A shadow of man's ravage, save his own;
When, for a moment, like a drop of rain,
He sinks into thy depths with bubbling groan,
Without a grave, unknelld, uncoffin'd and
un-known."

The "Battle of Waterloo," Bk. V., p. 276, also by Byron, is in the same metre. The disposition of the rhymes, which are three in number, is worthy of observation, the first being between lines 1 and 3, the second embracing lines 2, 4, 5, and 7, and the third including lines 6, 8, and 9. This arrangement is faithfully carried out in every stanza. This metre is sometimes called the *Spenserian Stanza*, being that in which Edmund Spenser wrote his "Faery Queen," about the year 1590.

The Fifth Reader contains two

specimens of 6, 10, 10, 6. The first on page 72 :

"Whither | midst fall- | ing dew,
While glow | the heavens | with the | last
steps | of day,
Farthrough | the ro- | sy depths | dost thou |
pursue
Thy sol- | ita- | ry way?"

The other, on page 221, is entitled "Blind Bartimeus."

A modification of the Common Metre is 8, 6, 8, 6, 8, 8. The selection in the Advanced Reader, p. 135, is more regular, but not so great a favourite as the "Battle of Blenheim" in the Fourth. In the latter, the first stanza lacks a syllable at the end of the first line, unless "evening" be pronounced as three syllables. The fourth stanza lacks one in the first line, and has an extra syllable in the second.

"I find | them in | the gar | den,
For there's ma- | ny here | a- bout ;
And oft- | en when | I go | to plough,
The plough- | share turns | them out.
For ma- | ny thou- | sand men, | said he,
Were slain | in that | great vic- | to- ry."

In the concluding couplet of this stanza, the last syllable of "victory" is supposed to rhyme with "he." Some readers make it a rule to alter one of the syllables in every case of imperfect rhyme. For instance, *wound* (oo) is altered to *wound* (ow) in order to rhyme with *sound*, and *wind* to *wind*, in order to rhyme with *find*. The folly of making such alterations may be illustrated by an incident which occurred at Ware, in Hertfordshire, England, a few years ago. It was then customary to employ a lay clerk to give out the hymns at one of the Nonconformist chapels. The clerk, one Sunday, surprised the congregation by commencing one of Dr. Watts' hymns thus:

"Man has a soul of vast desires,
He burns with strong, with inward fires;
Tossed to and fro, his passions fly
From vanite to vaniti."

Another modification of Common Metre is 8, 8, 6, 8, 8, 6, Bk. IV, p. 347. The octosyllabic lines form couplets, and the remaining lines rhyme together. The reader's attention is called to the elision, or cutting out of the vowel in the particle "the" in the 1st, 3rd, and 6th lines.

"Begin, | my soul, | th' exalt- | ed lay !
Let each | enrap | tured thought | o- bey,
And praise | th' Almigh- | ty's name ;
Lo ! heaven | and earth, | and seas | and skies
In one | melo- | dious con- | cert rise
To swell | th' inspir- | ing theme."

Some writers carry elision to such excess that it is difficult, in reading, to give the sense and at the same time preserve the rhythm. Bishop Percy, in his "Friar of Orders Grey" reduces "complaining" to "plaining" :

"Within these holy cloisters long
He languished, and he died,
Lamenting of a lady's love,
And 'plaining of her pride."

Sir Walter Scott's "Death of Keeldar," and Montgomery's "Common Lot" are in the metre 8, 8, 8, 6, the former taking eight lines, and the latter four lines to the stanza; but the rhymes are differently arranged. The amphibrach occurs in the sixth stanza of the Death of Keeldar, in the 4th and 8th lines.

"The no- | ble hound, | he dies, | he dies—
Death, death | has glazed | his fix | ed eyes,
Stiff on | the blood- | y heath | he lies,
Without | a groan | or qui-ver ;
Now day | may break | and bu- | gle sound,
And whoop | and hal- | loo ring | a- round,
And o'er | his couch | the stag | may bound,
But Keel- | dar sleeps | for ev-er."

The "Common Lot" was in the Old Third Reader. It is a pity to lose such a beautiful poem from our books:

"Once in | the flight | of ag- | es past,
There lived | a man | and who | was he ?
Mortal ! | howe'er | thy lot | be cast,
That man | resem- | bled thee."

In "Lord Ullin's Daughter," Bk. IV., p. 195, the amphibrach occurs at

the end of every second line. The metre is 8, 7, 8, 7, 8, 7, 8, 7, with alternate rhymes.

"A chief- | tain tó | the High- | lands b'sund,
Cries, ' Bóat- | man, dó | not ta'rry,
And T'll | give thée—a síl- | ver p'sund
To rów | us ó'er | the j'érry.
'Now whó | beyé | would cróss | Loch-gy'le
This dárk | and stór- | my wa'ter?
'Oh, 'T'm | the chieff | of 'Ul- | va's 'i'sle
And this | Lord 'Ul- | lin's da'ughter.' "

The last iambic metre I shall notice is 7, 6, 7, 6, in which the final foot of the first and third lines is an amphibrach, is the selection on page 340 of the Fourth Reader,

"Háil to | the Lord's | a- n'tinted,
Great Dá- | vid's greater sòn ;
Háil, in | the tíme | ap- póinted,
His réign | on éarth | be- gu'n."

In the first and third lines, the first syllable being accented and the second syllable not, we have three different feet in the same line.

A foot consisting of two syllables, the first accented and the second unaccented, is called a *Trochee* (tro'-ke). It is not as extensively used as the iambus, but poetry in which it is employed is generally marked by great vigour or much pathos. Metres in which this foot is employed are generally characterized by regularity in their construction. It has seldom more than eight syllables in a line, nor less than six, the common number being seven, in which case the last foot has only one syllable. Such lines are said to be *Catalectic*, or truncated. Cowper's "Boadicea," Bk. V., p. 83, is a fine specimen of the four-line sevens, where the first and last syllables of every line are accented.

"Whén the | Britísh | wárríor | queen,
Bléeding | fróm the | Róman | rods,
Sóught with | án in- | dígnant | mien,
Cóunsél | of her | cóuntry's | gods."

This metre is subject to the same variations as to number of lines and distribution of rhymes as the eight-syllable iambs. When written in couplets

the lines are not indented. Toplady's hymn,

"Rock of ages ! cleft for me,"

Bk. IV., p. 346, is written in couplets, of which there are three to each stanza.

Of 8, 7, 8, 7, the first and third lines having four perfect feet, the second and fourth lines being catalectic, we have, in the Fourth Reader, Longfellow's "Psalm of Life," p. 342,

(1) "Tell me not, in mournful numbers,"

in the Fifth Reader, p. 286,

(2) "Cold and brilliant streams the sunlight
On the wintry banks of Seine,"

and in the Advanced Reader, p. 93,

(3) "Now the third and fatal conflict
Of the Persian throne was done,"

and (4) the "Burial March of Dundee," p. 177. In the first of these selections the rhyme is alternate, and, with one exception, perfect. In the other three selections the rhyme is wanting between the first and third lines, and for that reason the fourth selection should have been printed, like the second and third, in lines of fifteen syllables each.

The reader will observe that though the six last quoted selections are all true to their model, they are not perfect specimens of trochaic metre. "Hiawatha's Sailing," Bk. IV., p. 27, is made up of perfect trochees, every line having four feet. As there is no rhyme, it is a species of blank verse. A much more melodious composition in the perfect trochee is a hymn by the Rev. Sir Henry Baker, in 6, 6, 6, 6 metre :

"Lord, Thy | Word a- | bideth
And our | footsteps | guideth ;
Who its | truth be- | lieveth
Light and | joy re- | ceiveth."

The *Anapest* is a foot consisting of three syllables, the first and second unaccented and the third accented. The frequent occurrence of an iambus

as the first foot, in lines of anapestic verse, makes the measuring of these metres by syllables very uncertain and unsatisfactory. For this reason it is more convenient to reckon the number of feet in a line. This irregularity interferes very little with the reading, and, in fact, is hardly perceptible. The character of anapestic poetry is generally light and playful. Sometimes, however, it rises to the sublime.

Lines consisting of four feet are called *Te-tram'eters*. The Readers contain four selections in this metre:

- (1) "The char- | iot, the char- | iot ! its wheels
| roll on fire,
As the Lord | cometh down | in the
pomp | of His ire,"

in the Advanced Reader, p. 145.

- (2) "In a crack | near the cup- | board with
dain- | ties pro-vid- | ed,
A cer- | tain young mouse | with her
moth- | er re-sid- | ed,"

in the Second Reader, p. 166.

- (3) "Be-tween | Eyes and Nose | a sad |
contest a-rose,"

in the Third Reader, p. 56 ; and the "Destruction of Sennacherib," by Lord Byron, in the Fourth Reader, p. 291. It is to be regretted that it is incorrect to place the accent on the third syllable of Galilee.

- (4) "The As-sy- | rian came down | like the
wolf | on the fold,
And his co- | horts were gleam- | ing in
pur- | ple and gold ;
And the sheen | of their spears | was
like stars | on the sea,
When the blue | waves roll night- | ly
on deep | Gal-i-lee."

Lines having an extra unaccented syllable at the end, as in the example (2) from the Second Reader, above quoted, are called *Hyper-met'rical*. Sometimes such a redundant syllable, if added to the next line, would make the first foot perfect. A line consisting of three feet is called a *Trim'eter*. In the Third Reader, p. 209, an example of this metre will be found,

"I am mon- | arch of all | I sur- *vey* ;
My right | there is none | to dis- *pute* ;
From the cen- | tre all round | to the *sea*
I am lord | of the fowl | and the *brute*."

When the first foot is an iambus and the remaining feet are anapests, we consider the metre as anapestic. There are, however, several selections in which the two kinds of feet are mingled in a very promiscuous manner. For instance in the Third Reader, p. 70, we have,

"Faint-ly | as tólls | the éve- | ning chime,
Our vóic- | es keep túne | and our óars |
keep time."

In which the first foot is a trochee.

"Hast thou sôund- | ed the dépths | of yón- |
der séa ?"—p. 181.

"Not a drúm | was héard, | nor a fú- | ne-ral
nôte."—p. 192.

"A sól- | dier óf | the Lé-gion | lay dy'- |
ing ín | Al-giërs,
There was láck | of wó- | man's núr-sing, |
there was déarth | of wó- | man's
téars."—p. 285.

In the Fourth Reader we have,

"A-fár | in the dés- | ert I lóve | to ride."—
p. 254, and

"I héar | thee spéak | of the bét- | ter lánd ;
Thou cáll- | est its chíl- | dren a háp- | py
bánd ;
Mó-ther ! | oh, whére | is that rá- | diant
shóre ?

Sháll we | not séek it, | and wéep | no
móre ?

Is it whére | the flówer | of the ór- | ange
blóws,

And the fire- | flies glánce | through the
my'r- | tle-bóughs ?"

"Not thére, | not thére, | my child !"—
p. 353 ;

And in the Fifth Reader,

"Old Tú- | bal Cáin | was a mán | of míght."—
p. 51.

"Here's a só'ng | for thée— | of the lín- | den
trée."—p. 108.

"I bríng | fresh sho'wers | for the thíst- | ing
flówers."—p. 123, and

"Ye mariners of England."—p. 142.

If due attention be paid to the *scanning*, no mistake need be made in

reading any of these selections. By scanning we understand the dividing of verse into feet, and the marking of the accented syllables. Whether this can be done mentally, with sufficient rapidity, depends on the nature of the work and the skill of the reader. There are cases in which it is difficult to tell which are the accented syllables. For instance, there are two versions of the 95th Psalm, beginning with the same line. One has four iambic feet and reads

"O co'me | let u's | sing to' | the Lo'rd."

The other has an iambus and two anapests, thus,

"O co'me | let u's sing |' to the Lo'rd."

The *Dactyl* is a foot consisting of three syllables, the first accented, the second and third unaccented. It is not commonly employed. Heber's "Epiphany Hymn" is one of the finest specimens. The stanza has four tetrameter lines, of which the first and third end with a trochee. The second and fourth are catalectic. The rhyme is alternate.

"Bright-est and | bést of the | so'ns of the |
môrn-ing,
 Dáwn on our | dárkness, and | lénd us
 thine | *áid*;
 Stár of the | éast, the ho- | rí-zon a- | *dôrm-*
ing,
 Guide where our | ín-fant Re- | déem-er
 is | *la'id.*"

The *Spondee* is a foot consisting of two accented syllables. It never occurs except as an irregularity, and always requires careful looking to, so that the emphasis may be distributed evenly. In the Doxology,

"Praise Go'd, | from who'm | 'all blés | sings
flô'w,
 Pra'ise Hím | all créa- | tures hére | be-lo'w;
 Pra'ise Hím | a-bo've, | ye héaven- | ly ho'st,
 Pra'ise Fa'ther, So'n, | and Ho'- | ly Gho'st."

there are five spondees. The first foot of the line

"'All péo- | ple tha't | on éarth | do dwéll."

is a spondee, and the first foot of

"Go'd mo'ves | in a | mys-té- | rious wa'y."

The second foot is a *Pyrrhic* (pir'-ik), and consists of two unaccented syllables. There is one other foot we occasionally meet with in English poetry. It consists of four unaccented syllables, and is called *Proceleus-matics*. In Faber's hymn "Hark! hark, my soul!" it occurs in the last line, thus:

"'An-gels of | Jé-sus, | a'n-gels of | líght,
 Sing-ing to | wél-come the | pil-grims of
 the | night."

Also in Heber's "Trinity Hymn,"

"'On-ly | Tho'u art | ho-ly | there is none
 be- | side Thee."

I shall conclude this paper with an analysis of the "National Anthem." The stanzas contain seven lines. The metre is 6,6,4, 6,6,6,4. The music evidently treats it as dactylic; but the question arises whether to divide the first two lines into two feet of three syllables each, or three feet of two syllables. Using the classical signs of long and short syllables for accented and unaccented syllables respectively, they would be arranged thus, — — — — — and might be scanned

"Go'd sa've | our gra'- | cious Quéén,
 Lo'ng live | our no'- | ble Quéén,
 Go'd sa've | the Quéén."

in which the first is a spondee, and the other feet are iambs; or with irregular dactyls, thus,

"Go'd sa've our | gra'-cious Quéén,
 Lo'ng live our | no'-ble Quéén,
 Go'd sa've the | Quéén."

About the remaining lines there can be no doubt.

"Sénd her vic- | to'-rí-ous,
 Ha'p-py and | glo'-ri-ous,
 Lo'ng to reign | o'-ver us,
 Go'd save the | Quéén."

EARLY CONTINENTAL EDUCATORS AND THEIR THEORIES.*

THE *Emile* of Rousseau was published in 1762. It produced an astounding effect throughout Europe. Those were days when the whole cultivated world vibrated to any touch of new philosophy. French had superseded Latin as the general medium of thought. French learning stood in the same relation to the rest of Europe as German learning does now; and any discovery of D'Alembert, Rousseau, or Maupertuis travelled with inconceivable speed from Versailles to Schönbrunn, from the Spree to the Neva. Kant in his distant home of Königsberg broke for one day through his habits, more regular than the town clock, and stayed at home to study the new revelation. The burthen of Rousseau's message was Nature, such a nature as never did and never will exist, but still a name for an ideal worthy of our struggles. He revolted against the false civilization which he saw around him; he was penetrated with sorrow at the shams of government and society, at the misery of the poor existing side by side with the heartlessness of the rich. The child should be the pupil of nature. He lays great stress on the earliest education. The first year of life is in every respect the most important. Nature must be closely followed. The child's tears are petitions which should be granted: The naughtiness of children comes from weakness; make the child strong and he will be good. Children's destructiveness is a form of activity. Do not be too anxious to make children talk; be satisfied with

a small vocabulary. Lay aside all padded caps and baby jumpers. Let children learn to walk by learning that it hurts them to fall. Do not insist too much on the duty of obedience as on the necessity of submission to natural laws. Do not argue too much with children; educate the heart to wish for right actions; before all things study nature. The chief moral principle is *do no one harm*. *Emile* is to be taught by the real things of life, by observation and experience. At twelve years old he is scarcely to know what a book is; to be able to read and write at fifteen is quite enough. We must first make him a man, and that chiefly by athletic exercises. Educate his sight to measure, count, and weigh accurately; teach him to draw; tune his ear to time and harmony; give him simple food, but let him eat as much as he likes. Thus at twelve years old *Emile* is a real child of nature. His carriage and bearing are fair and confident, his nature open and candid, his speech simple and to the point; his ideas are few but clear; he knows nothing by learning, much by experience. He has read deeply in the book of nature. His mind is not on his tongue but in his head. He speaks only one language, but knows what he is saying, and can do what he cannot describe. Routine and custom are unknown to him; authority and example affect him not; he does what he thinks right. He understands nothing of duty and obedience, but he will do what you ask him, and will expect a similar ser-

* From the article on "Education" in the new (9th) edition of the *Encyclopædia Britannica*.

vice of you in return. His strength and body are fully developed; he is first-rate at running, jumping, and judging distances. Should he die at this age he will so far have lived his life. From twelve to fifteen Emile's practical education is to continue. He is still to avoid books which teach not learning itself but to appear learned. He is to be taught and to practice some handicraft. Half the value of education is to waste time wisely, to tide over dangerous years with safety, until the character is better able to stand temptation. At fifteen a new epoch commences. The passions are awakened; the care of the teacher should now redouble; he should never leave the helm. Emile having gradually acquired the love of himself and of those immediately about him, will begin to love his kind. Now is the time to teach him history, and the machinery of society, the world as it is and as it might be. Still an encumbrance of useless and burdensome knowledge is to be avoided. Between this age and manhood Emile learns all that it is necessary for him to know. It is, perhaps, strange that a book in many respects so wild and fantastic should have produced so great a practical effect. In pursuance of its precepts, children went about naked, were not allowed to read, and when they grew up wore the simplest clothes, and cared for little learning except the study of nature and Plutarch. The catastrophe of the French Revolution has made the importance of Emile less apparent to us. Much of the heroism of that time is doubtless due to the exaltation produced by the sweeping away of abuses, and the approach of a brighter age. But we must not forget that the first generation of Emile was just thirty years old in 1792; that many of the Girondins, the Marseillais, the soldiers and generals of Carnot and Napoleon had been bred in that hardy school. There

is no more interesting chapter in the history of education than the tracing back of epochs of special activity to the obscure source from which they arose. Thus the Whigs of the Reform Bill sprang from the wits of Edinburgh, the heroes of the Rebellion from the divines who translated the Bible, the martyrs of the Revolution from the philosophers of the Encyclopædia.

The teaching of Rousseau found its practical expression in the *philanthropin* of Dessau, a school founded by Basedow, the friend of Goethe and Lavater, one of the two prophets between whom the world-child sat bodkin in that memorable post-chaise journey of which Goethe has left us an account. The principles of the teaching given in this establishment were very much those of Comenius, the combination of words and things. An amusing account of the instruction given in this school, which at this time consisted of only thirteen pupils, has come down to us, a translation of which is given in the excellent work of Mr. Quick on Educational Reformers. The little ones have gone through the oddest performances. They play at "word of command." Eight or ten stand in a line like soldiers, and Herr Wolke is officer. He gives the word in Latin, and they must do whatever he says. For instance when he says "claudite oculos," they all shut their eyes; when he says "circumspicite," they look about them; "imitamini sutorem," they draw the waxed thread like cobblers. Herr Wolke gives a thousand different commands in the drollest fashion. Another game, "the hiding game," may also be described. Some one writes a name and hides it from the children, the name of some part of the body, or of a plant or animal, or metal, and the children guess what it is. Whoever guesses right gets an apple or a piece of cake; one of the visitors wrote

"intestina," and told the children it was part of the body. Then the guessing began, one guessed caput, another nasus, another os, another manus, pes, digiti, pectus, and so forth for a long time, but one of them hits at last. Next Herr Wolke wrote the name of a beast or quadruped, then came the guesses, leo, ursus, camelus, elephas, and so on, till one guessed right; it was mus. Then a town was written, and they guessed Lisbon, Madrid, Paris, London, till a child won with St. Petersburg. They had another game which was this. Herr Wolke gave the command in Latin, and they imitated the noises of different animals, and made the visitors laugh till they were tired. They roared like lions, crowed like cocks, mewed like cats, just as they were bid. Yet Kant found a great deal to praise in this school, and spoke of its influence as one of the best hopes of the future, and as "the only school where the teachers had liberty to act according to their own methods and schemes, and where they were in free communication both among themselves and with all learned men throughout Germany."

A more successful labourer in the same school was Salzmann, who bought the property of Schnepfenthal near Gotha in 1784, and established a school there, which still exists as a flourishing institution. He gave full scope to the doctrines of the philanthropists; the limits of learning were enlarged; study became a pleasure instead of a pain; scope was given for healthy exercise; the school became light, airy and cheerful. A charge of superficiality and weakness was brought against this method of instruction; but the gratitude which our generation of teachers owes to the unbounded love and faith of these devoted men cannot be denied or refused. The end of the 18th century saw a great development given to

classical studies. The names of Cellarius, Gesner, Ernesti, and Heyne are perhaps more celebrated as scholars than as schoolmasters. To them we owe the great importance attached to the study of the classics, both on the Continent and in England. They brought into the schools the philology which F. A. Wolf had organized for the universities. Pestalozzi, on the other hand, was completely and entirely devoted to education. His greatest merit is that he set an example of absolute self-abnegation, that he lived with his pupils, played, starved, and suffered with them, and clung to their minds and hearts with an affectionate sympathy which revealed to him every minute difference of character and disposition. Pestalozzi was born at Zurich in 1746. His father died when he was young, and he was brought up by his mother. His earliest years were spent in schemes for improving the condition of the people. The death of his friend Bluntschli turned him from political schemes, and induced him to devote himself to education. He married at 23, and bought a piece of waste land in Aargau, where he attempted the cultivation of madder. Pestalozzi knew nothing of business, and the plan failed. Before this he had opened his farm-house as a school; but in 1780 he had to give this up also. His first book published at this time was *The Evening Hours of a Hermit*, a series of aphorisms and reflections. This was followed by his masterpiece, *Leonard and Gertrude*, an account of the gradual reformation, first of a household, and then of a whole village, by the efforts of a good and devoted woman. It was read with avidity in Germany, and the name of Pestalozzi was rescued from obscurity. His attempts to follow up this first literary success were failures. The French invasion of Switzerland in 1798 brought into relief his truly heroic

character. A number of children were left in Canton Unterwalden on the shores of the Lake of Lucerne, without parents, home, food or shelter. Pestalozzi collected a number of them into a deserted convent, and spent his energies in reclaiming them. "I was," he says, "from morning till evening, almost alone in their midst. Everything which was done for their body or soul proceeded from my hand. Every assistance, every help in time of need, every teaching which they received, came immediately from me. My hand lay in their hand, my eye rested on their eye; my tears flowed with theirs, and my laughter accompanied theirs. They were out of the world, they were out of Stanz; they were with me, and I was with them. Their soup was mine, their drink was mine. I had nothing, I had no housekeeping, no friend, no servants around me; I had them alone. Were they well, I stood in their midst; were they ill, I was at their side. I slept in the middle of them. I was the last who went to bed at night, the first who rose in the morning. Even in bed I prayed and taught with them until they were asleep,—they wished it to be so." Thus he passed the winter, but in June, 1799, the building was required by the French for a hospital, and the children were dispersed. We have dwelt especially on this episode of Pestalozzi's life, because in this devotion lay his strength. In 1801 he gave an exposition of his ideas on education in the book *How Gertrude teaches her Children*. His method is to proceed from the easier to the more difficult. To begin with observation, to pass from observation to consciousness, from consciousness to speech. Then come measuring, drawing, writing, numbers, and so reckoning. In 1799 he had been enabled to establish a school at Burgdorf, where he remained till 1804. In 1802, he went as deputy to Paris, and did his best to

interest Napoleon in a scheme of national education; but the great conqueror said that he could not trouble himself about the alphabet. In 1805 he removed to Yverdon on the Lake of Neuchâtel, and for twenty years worked steadily at his task. He was visited by all who took interest in education, Talleyrand, Capo d'Istria, and Madame de Stael. He was praised by Wilhelm von Humboldt and by Fichte. His pupils included Ramsauer, Delbrück, Blochmann, Carl Ritter, Fröbel, and Zeller. About 1815 dissensions broke out among the teachers of the school, and Pestalozzi's last ten years were chequered by weariness and sorrow. In 1825 he retired to Neuhof, the home of his youth; and after writing the adventures of his life, and his last work, the *Swan's Song*, he died in 1827. As he said himself, the real work of his life did not lie in Burgdorf or in Yverdon, the products rather of his weakness than of his strength. It lay in the principles of education which he practised, the development of his observation, the training of the whole man, the sympathetic application of the teacher to the taught, of which he left an example in his six months' labours at Stanz. He showed what truth there was in the principles of Comenius and Rousseau, in the union of training with information, and the submissive following of nature; he has had the deepest effect on all branches of education since his time; and his influence is far from being exhausted.

The *Emile* of Rousseau was the point of departure for an awakened interest in educational theories which has continued unto the present day. Few thinkers of eminence during the past hundred years have failed to offer their contributions more or less directly on this subject. Poets like Richter, Herder, and Goethe, philosophers such as Kant, Fichte, Hegel, Schleier-

macher, and Schopenhauer, psychologists such as Herbart and Beneke, have left directions for our guidance. Indeed, during this time the science of education or pædagogics, as the Germans call it, may have been said to have come into existence. It has attracted but little attention in England; but it is an important subject of study at all German universities, and we may hope that the example given by the establishment of chairs of education in the Scotch universities may soon be followed by the other great centres of instruction in Great Britain. Jean Paul called his book *Levana*, after the Roman goddess to whom the father dedicated his newborn child, in token that he intended to rear it to manhood. He lays great stress on the preservation of individuality of character, a merit which he possessed himself in so high a degree. The second part of *Wilhelm Meister* is in the main a treatise upon education. The essays of Carlyle have made us familiar with the mysteries of the pædagogic province, the solemn gestures of the three reverences, the long cloisters which contain the history of God's dealings with the human race. The most characteristic passage is that which describes the father's return to the country of education after a year's absence. As he is riding alone, wondering in what guise he will meet his son, a multitude of horses rush by at full gallop. "The monstrous hurly-burly whirls past the wanderer; a fair boy among the keepers looks at him with surprise, pulls in, leaps down, and embraces his father." He then learns that an agricultural life had not suited his son, that the superiors had discovered that he was fond of animals, and had set him to that occupation for which nature had destined him.

The system of Jacotot has aroused great interest in this country. Its author was born at Dijon in 1770. In

1815 he retired to Louvain and became professor there, and director of the Belgian military school. He died in 1840. His method of teaching is based on three principles:—

1. All men have an equal intelligence;

2. Every man has received from God the faculty of being able to instruct himself;

3. Every thing is in every thing.

The first of these principles is certainly wrong, although Jacotot tried to explain it by asserting that, although men had the same intelligence, they differed widely in the will to make use of it. Still it is important to assert that nearly all men are capable of receiving some intellectual education, provided the studies to which they are directed are wide enough to engage their faculties, and the means taken to interest them are sufficiently ingenious. The second principle lays down that it is more necessary to stimulate the pupil to learn for himself, than to teach him didactically. The third principle explains the process which Jacotot adopted. To one learning a language for the first time he would give a short passage of a few lines, and encourage the pupil to study first the words, then the letters, then the grammar, then the full meaning of the expressions, until by iteration and accretion a single paragraph took the place of an entire literature. Much may be effected by this method in the hands of a skilful teacher, but a charlatan might make it an excuse for ignorance and neglect.

Among those who have improved the methods of teaching, we must mention Bell and Lancaster, the joint-discoverers of the method of mutual instruction, which, if it has not effected everything which its founders expected of it, has produced the system of pupil-teachers which is common in our schools. Froebel also deserves an honourable place as the founder

of the Kindergarten, a means of teaching young children by playing and amusement. His plans, which have a far wider significance than this limited development of them, are likely to be fruitful of results to future workers.

The last English writers on education are Mr. Herbert Spencer and Mr. Alexander Bain, the study of whose writings will land us in those regions of pædagogics which have been most recently explored. We need not follow Mr. Spencer in his defence of science as the worthiest object of study, or in his rules for moral and physical training, except to say that they are sound and practical. In writing of intellectual education, he insists that we shall attain the best results by closely studying the development of the mind, and availing ourselves of the whole amount of force which nature puts at our disposal. The mind of every being is naturally active and vigorous, indeed it is never at rest. But for its healthy growth it must have something to work upon, and, therefore, the teacher must watch its movements with the most sympathetic care, in order to supply exactly that food which it requires at any particular time. In this way a much larger cycle of attainments can be compassed than by the adoption of any programme or curriculum, however carefully drawn up. It is no good to teach what is not remembered; the strength of memory depends on attention, and attention depends on interest. To teach without interest is to work like Sisyphus and the Danaïdes. Arouse interest if you can, rather by high means than by low means. But it is a saving of power to make use of interest which you have already existing, and which unless dried up or distorted by injudicious violence, will naturally lead the mind into all the knowledge which it is capable of receiving. Therefore,

never from the first force a child's attention; leave off a study the moment it becomes wearisome, never let a child do what it does not like, only take care that when its liking is in activity a choice of good as well as evil shall be given to it.

Mr. Bain's writings on education, which are contained in some articles in the *Fortnightly Review*, and in two articles in *Mind* (Nos. v. and vii.) are extremely valuable. Perhaps the most interesting part of them consists in his showing how what might be called the "correlation of forces in man" helps us to a right education. From this we learn that emotion may be transformed into intellect, that sensation may exhaust the brain as much as thought, and we may infer that the chief duty of the schoolmaster is to stimulate the powers of each brain under his charge to the fullest activity, and to apportion them in that ratio which will best conduce to the most complete and harmonious development of the individual.

It seems to follow from this sketch of the history of education that, in spite of the great advances which have been made of late years, the science of education is still far in advance of the art. Schoolmasters are still spending their best energies in teaching subjects which have been universally condemned by educational reformers for the last two hundred years. The education of every public school is a farrago of rules, principles, and customs derived from every age of teaching, from the most modern to the most remote. It is plain that the science and art of teaching will never be established on a firm basis until it is organized on the model of the sister art of medicine. We must pursue the patient methods of induction by which other sciences have reached the stature of maturity; we must discover some means of registering and tabulating results; we must invent a phrase-

ology and nomenclature which will enable results to be accurately recorded; we must place education in its proper position among the sciences

of observation. A philosopher who should succeed in doing this would be venerated by future ages as the creator of the art of teaching.

AUTHORIZED ETYMOLOGICAL TEXT BOOKS.*

WHEN the teachers of Ontario are promised a new text-book, it is not to be wondered at if they reserve their manifestations of delight until they have seen it; for surely there is no place less blest in the matter of school-books than Ontario. Mysterious as the hailstorm in a summer day is the authorization of text-books; they often come forth without any *raison d'être*, hold their ground without a merit, and die hard. Half-educated men, men unacquainted with their subject and with teaching, put forth books which the wand of authorization can introduce into every school-room, but cannot make effective. In our boyhood we used to have unlimited confidence in our spelling-book, and a spelling-book ought to excite confidence. English spelling is a subject which demands very great attention in its teaching; it is anomalous, it is difficult, but it can be taught and learned in a reasonable time; and if the proper attention were given to it we should not so often be disturbed with a threat of a "Spelling Reform" from those who have never acquired the art, or from those who want to see their names cheaply connected with the "reform" itself.

When, therefore, a new book on Etymology was announced from the pen of Mr. Connor, we were in hopes

that there would be a spelling department in it too. We were quite prepared to believe that it would be marked with evidence of modern scholarship throughout. We have not been disappointed, except in finding that it is not an "Etymological Spelling-book," but only a book on etymology. But we have every reason to be thankful nevertheless, and if it could be necessary to prove this we have only to turn again to the "Spelling-book, a Companion to the Readers." The teachers of Ontario know full well what a good chance this "Companion" would stand of being "spelled down" at a spelling-match. We know not to what edition our copy belongs, a date—1876—alone gives us any hint as to its age. Of course we do not accuse its author, or authors, of not knowing how to spell, but the evidences are numerous that the whole matter was left to the taste of the compositors. A curious example of this is found among the "Latin Roots." One copy—we do not like to say edition—had a misprint of *e* for *o* in the word *caro*, *flesh*; a subsequent copy corrects the mistake of the letter, and at the same time inserts an *n*, 'carno.' Whoever made the correction could not see how nominative *caro* could have genitive *carnis*. But we have no space for any further examples of this kind.

* (1). Elements of Etymology, for the use of Public and High Schools, by Jas. W. Connor, B.A., Head Master, Berlin High School. Toronto: Wm. Warwick, 1879.

(2). The Spelling-book: a Companion to the Readers, authorized by the Council of Public Instruction for Ontario. Toronto: James Campbell & Son

(3). Analysis of the English Language, by I. Plant Fleming, M.A. Toronto: Adam Miller & Co.

If in matters of spelling our "Companion" is a bad one, in matters of derivation it is infinitely worse. Let us take a hasty glance over the "Fourth Part" of this blind leader of the blind. First comes a history of the English Language, in which—note the title-page bears the date 1876—appear the following words, as containing the second step in the history of our language: "The early invasion by the Romans about 55 B.C., who introduced some military terms," etc. This implies, as we take it, that Julius Cæsar and his legions introduced such forms as *caster*, *coln*, and *street*. Turning a couple of leaves we find the following entry: "The term Anglo-Saxon, for the sake of convenience, is employed as embracing the Saxon, Gothic, and Celtic elements of the language;" Saxon and Celtic set aside as one language for the sake of convenience! On the next page we are shown how one word is derived from another, and the following are given as examples of the steps in the process: *feign*, *feigned*, *feint*; *bear*, *beareth*, *birth*; *die*, *dieth*, *death*, in which we are left to infer that *feint*, *birth*, and *death* are shortened forms of *feigned*, *beareth* and *dieth*. But let us turn a page. In the section on "Prefixes" we have *en* or *em* set down as Anglo-Saxon—which may mean Celtic as well,—and as examples of this prefix we have *enclose* and *embalm*. In the section on "Affixes" we find the suffixes *ar* (with *bursar*, *scholar*, and *vicar* as examples) and *ard* (with *coward* as example) given as Anglo-Saxon. To the same source are referred the suffixes *ry* in *carpentry*; *let* and *et* in *eaglet* and *coronet*; and *ish* in *publish* and *finish*. At page 198 we have *other* derived through French *autre* from Latin *alter*; *hear* through *ouïr* from *audire*; *eight* through *huit* from *octo*; *out* through *oultre* from *ultra*. Lastly, to go back to page 144, we find three parallel columns of "Words of similar signification," the first of

Greek, the second of Latin, and the third of English, which last, we ventured to suppose, meant words not derived from Latin or Greek. Then, in the column of English words we find *plea*, *praise*, *power*, *abridgment*, *pointer*, *change*, *chair*. But enough of this. Nothing more need be said to show what a dangerous "Companion" our school-children have, and how necessary that something should be done to rid them of the danger. Mr. Connor's little book corrects all these errors, not directly, for of course he ignores the "Companion" altogether, but by preparing a book in harmony with the present state of philological knowledge. Every page bears evidence of conscientious labour and true scholarship, and we are glad to find that in such a department as Philology Ontario possesses in the author of the "Elements" one who is able to deal with the subject as a master, and not as a *dilettante*.

To teach Etymology, as it must be taught at the present day, a very extensive range of philological reading is essential. It is not by any means sufficient to be able to indicate from what word the given one is derived, the means by which the parent is discovered must be stated also. Without this, Etymology is a barren study; with this, it is both instructive and interesting. It is possible, too, to make a great display of learning, and to very little purpose. What avails it to set down half a score of related words from different languages, without indicating what this accord among them means? One word cannot be derived from half a score of languages, and the danger is, that the unskilful seeker will select the word which, he imagines, most resembles the word in question, and so derive Anglo-Saxon, for example, from High German. Another dangerous rock is *guessing*. We do not now refer to ancient and mediæval efforts; such as *Latium* from *latere*, or *Lateran* from

lata rana, or Latin words from Greek, for Philology, in the modern sense, was then unknown. Even at the present day, however, we find the guess-work plan lingering on. Now it is exceedingly unlikely that the Latin word *luscini* comes from $\delta\upsilon\varsigma$ (and *cano*), though the *l* is found in Latin, representing δ in Greek, and yet this derivation has been suggested during the present year.

The "Elements of Etymology" begins with a chapter on the history of the formation of the English language. This is given with sufficient fulness. The word *Romanic* is used to "include all words borrowed from Latin (the language of the Romans) whether directly or indirectly through French, or other Romanic languages." While admitting that the word *Romanic* is good enough when we are dealing with the philology of the group of languages, which is derived from the Latin, we must nevertheless confess that we believe the term inappropriate when it is a question of tracing the formation of the English tongue. We cannot be too closely accurate in pointing out the historical landmarks of the language, and so we cannot deem it advisable to place Latin and French together under one head, seeing that Latin and French influenced our national speech independently of each other. Latin, in the form which it wore anteriorly to the rise of the French language, is projected into English, at least at two successive epochs. French, though essentially of Latin origin, possesses so many peculiarities of its own, that on its introduction into England in the eleventh century, it began to affect the language in such a manner as Latin, in its purer form, never did affect it. French is indeed a corruption of Latin, but not by a Latin people, and it was long before it was fully recognized what part Latin played in the formation of French. Now, English organs of speech, dealing with Latin words produced one

set of changes; dealing with French words, they produced another set; because the materials to be worked over were different in each case—an alloy is easier to work than pure metal.

The learner should acquire a knowledge of the successive waves of foreign influence, and the closest accuracy which we can attain would not have made the introduction too long. Not till this clear outline is thoroughly grasped, should much attention be given to the derivation of individual words. The other languages, from which we have drawn some of our stores, are kept sufficiently apart. With regard to the Norse element, we might remark in passing, that a language that could impose upon English a verbal auxiliary—*are*—must have had closer relations with the language than our present vocabulary would lead us to believe. Many of the words which we now explain as Anglo-Saxon are doubtless of Norse origin.

As soon as a tolerably clear idea of the historical development of our language has been secured by the learner, the next important step is to place within his reach an adequate exposition of what is meant by "Grimm's Law." It is surprising how little is known of this well-established principle, even by many of the teachers in our schools, and yet it is both easy of acquisition and sure to attract the attention even of young scholars. One often hears a learner of German ask if such and such an English word is derived from its German relative. At the present time there are, both in Ontario and elsewhere, young scholars who cannot make up their minds as to whether English is derived from German or German from English. A few black-board exercises on "Grimm's law" would render the matter for ever plain. The sketch made in section 9 of the "Elements" will, we imagine, be found by no means easy by young scholars, especially if they are unacquainted

with the elements of Greek. Our author evidently takes for granted that the Greek mutes have been learned by the young scholar, and that a table—we mean a clear, formal table, standing well out from the text—is unnecessary. We should like to have seen more space allowed to the subject, and additional typographical expedients employed in its simplification.

It must be confessed that to make Philology attractive to those who never intend to learn more than they must learn in order to pass an impending examination, is no easy matter. Still it is not impossible to give a sufficiently clear idea of the scope of the subject to the general student; but for this we can never depend upon a text-book. Of course the text-book is of prime importance, and no subject taught without a text-book is really taught at all; but our meaning is, that the teacher of this subject, as of every other, must stand above his text-book, and not merely on a level with it, or below it. Doubtless Mr. Connor had in view this important fact when, in his third chapter, he presents us with a list of roots and root-words without prefacing them with any general remarks on the nature of roots. The book might have been rendered too bulky by such explanation, but we fear Mr. Connor has rated too highly the preparation for the work to be found even in some of our High Schools. This third chapter cannot be understood by a young scholar without careful explanation, and we are not sure that he will at once, in all cases, be able to get the needed light, for few but deliberate philological students get to know what a "root" is.

The real work of the "Elements" begins with the third chapter. We have evidence here of very careful and extended study. One has only to look at the list of works from which much of the material is culled, to perceive that the author is *au courant*

with the best literature of his subject. No second-rate compiler will be found among the names enumerated. To say that we do not accept everything set down is only to remark that no two etymologists will agree on every point, nor is there, for the present, any hope of getting any two to agree in every respect in a subject in which it is so easy to go astray in labyrinths of words, or in which one is so liable to be led hither and thither in the twilight by all kinds of will-o'-the-wisps in the shape of false analogies. It were almost better, in such doubtful cases, instead of saying that such and such a word is *probably* derived from such another, to adopt Brachet's plan, and boldly say, "Origin unknown." In unskilful hands the 'probably' drops out, and a side-door is kept open for the reception of such words as would not dare to present themselves at the main entrance. If a word lie outside the region of historical proof, or of philological law, then it is mere waste of time to learn—at least for a beginner—from what source it has probably sprung. Indeed, we hope that in a subsequent edition we may have an appendix containing common words of unknown origin, for even knowledge of this negative kind is extremely useful. The truth is, as we have been often reminded in our examination of Mr. Connor's book, the author had much better have taken it for granted that those for whom his book was prepared have little better than a negative knowledge of the subject of which he is such a master. We should, in this case, have had a work that, though it might not have so well mirrored Mr. Connor's full and scholarly mind, would have been within the grasp of that of the ordinary pupil. As it is, the book is beyond the requirement, and even the power of use, of all but the graduating University student and the High-School master. This is a pity, because there was urgent need

in the schools for a good, well-adapted text-book in Etymology, with a series of instructive lessons for the pupil's use, and as much else of philological lore as the average school-boy could usefully digest. In a sense it is not to be regretted that this is not what Mr. Connor has thought fit to give us, but it is, nevertheless, what the schools wanted, and what we supposed the Minister of Education, or his advisory body, would have taken care to see that it was what we got. It may be to little purpose now to rail at those responsible for this new Departmental *contre-temps*, but surely if it is to assume proprietary interests in the text-books it authorizes, it should first submit them to practical teaching tests, and then to competent literary supervision. It is no compliment to an author to allow him to undertake the preparation of a manual for a specific educational purpose, and from want of judicious direction and oversight to have a work produced not best, but only approximately, suited to its uses. What warrant the Department has, in any case, for entering into publishing speculations of its own, it would be hard to say. It would be harder still to say why it engages in trade enterprises not justified by a pressing educational necessity. For such a text-book as the schools *did* want, there was an admitted necessity; for such as Mr. Connor—through the Department—has given us, there was little or none. It would be ungracious to Mr. Connor to say more, lest that gentleman should misconceive the point of our criticism. We are not decrying *his* work, but that of the Central Committee. *His* labour has been well performed; *theirs* not at all.

And now for Fleming's "Analysis." We suppose that this work was placed among the authorized text books, chiefly on account of its so-called "Etymological Derivations," but let not the reader be startled at the redundancy of

the phrase. Horne Tooke, if he does not reign, at least holds, throughout the work, a recognized position. The author of the "Analysis" has, however, a great advantage over the compilers of the "Companion;" the former, we perceive, manifests some knowledge of Anglo-Saxon, for which we seek in vain in the latter. But of modern Philology, the book before us is almost as destitute as the other—individual words are dealt with, and not principles, and sometimes the individual words are very harshly dealt with indeed. As an evidence of want of philological training in the author of the "Analysis," we have merely to note that *drunkard* and *braggart* are said to be of Gothic origin, just as *balloon* and *trombone* are Italian. Now these latter are borrowed from the Italian, while, of the former, one is only "akin" to Gothic, the other is most probably Celtic. Here again we meet with the old error of supposing that because Gothic possesses so strong a likeness to English in some of its words, the former must therefore be the parent of the latter. Further on we find a list of "Diminutive Verbs," and *gladden*, *bind*, *brush*, with many others, are among the examples. The *ish* in *burnish*, is explained as a causative suffix, so that *burnish* means, we suppose, *to make burn*. Passing over several lists, from any of which we might select specimens of false derivation, we come to Chapter V. This may be called Horne Tooke's own chapter. Out of a couple of pages of what at the present day seems very like nonsense—and it is nonsense when seriously reproduced for our young people to study—we shall take only three examples. *Coward* is from *cower'd*, from *to cower down*; *month*, from *mooneth*; *tooth*, from *tuggeth*! But let us pass rapidly on. We are disposed to treat leniently attempts to derive such words as defy the application of ordinary philological principles.

There are words which seem to be of no great antiquity, and yet whose origin is hidden; with these an ingenious guess is pardonable, but it must be given as a guess. It is in such words as these that the unscientific etymologist seems to take the greatest interest; to him it is of prime importance to know whether *caucus* is from the *calk-house* in Boston, or from Gaelic; whether *bachelor* is *bas chevalier*, or from the Welsh *bachgen*, or from Low Latin *baccalarius*; the most fanciful derivation is usually the one preferred.

Mr. Fleming's tenth and following chapters will be found to contain many examples of "far-fetched" derivation, and though a large proportion of

these be admissible, the lists contain so many old guesses that they are quite untrustworthy for reference.

On the whole, then, with the exception of Mr. Connor's book, and that with the reservation we have made, we have not much occasion to congratulate the Ontario teaching profession on the character of the Etymological text-books which possess the authorization of the Department. It is quite time that, in so important a subject, we should have text-books of a higher character of scholarship, and better adapted to the wants of our Public and High Schools. Is it hopeless to expect the Department to recognize and supply these wants?

WE are much pleased to learn that the new "Intermediate" Geography, designed to take the place of "Lovell's Easy Lessons," in that enterprising publisher's series of school books, is to appear early in September. We also learn that the "Advanced" Geography in the same series, which is to take the place of the "General Geography,"—the first text-book on the subject published in this country—will be issued in October next. Mr. Lovell announces that the new issues will, in their literary and mechanical execution, be in advance of anything hitherto published in Canada, the books having been carefully edited by competent scholars, and scrupulously revised by gentlemen familiar with the results of modern geographical research. We hope to notice them at length in our next number.

THE Young Ladies' Class conducted by Mrs. Lovell, of Montreal, will open at her residence in that city early in September. The object aimed at by Mrs. Lovell is to direct the studies of young ladies, well-grounded in the elementary branches, who may desire to pursue a course of reading that will thoroughly train their minds. That result is achieved by means of lectures and

conversations on literary, art, and scientific subjects, and by weekly conversaciones devoted to art, music, and literature, at which the pupils are brought into contact with intelligent and cultivated society, which Mrs. Lovell's accomplishments, her enthusiasm on behalf of the Higher Education of Women, and her position in Montreal society enable her, at stated intervals, to bring together.

THE Institution, Dufferin House, conducted by Miss Dupont, John Street, Toronto, will re-open on the 8th September. It is of no little moment—if the fair sex in Canadian society is to exercise that influence which many of their English sisters are now exercising in the domain of mind, as well as in that of society circles,—that such an institution as Miss Dupont's should exist in our midst, affording facilities not only for acquiring a high-class education, but for the imparting of those graces of manner and bearing which stamp the true lady, and exert a wholesome refining influence. Ably assisted by resident governesses and by visiting professors, Miss Dupont's establishment easily leads among similar institutions of the city and province.

ARTS DEPARTMENT.

[NOTE.—We publish this month a selection from the Annual Examination Papers of the University of Toronto, for Junior Matriculation; also a selection from the July Examination Papers of the Education Department for First, Second, and Third-Class Teachers, the continuation of which we will give, with solutions to the Mathematical papers, in subsequent numbers. ARCHIBALD MACMURCHY, M.A., Math. Ed. C. E. M.]

UNIVERSITY OF TORONTO EXAMINATIONS, 1879.

JUNIOR MATRICULATION.

HISTORY AND GEOGRAPHY.

[Legible writing, correct spelling, and grammatical language are indispensable.]

(N.B.—Questions 2, 3, 4, 5, 8, 9, 10, 11, 12, and 13 are for Candidates in Arts; Questions 1, 2, 5, 6, 7, 8, 9, 11, 12, and 13 for Candidates in Medicine.)

1. Enumerate the Aryan or Indo-European races of Europe, and explain what is meant by the term.

2. Relate the history of the invasion of Greece by Xerxes.

3. Describe the political constitution of Athens in the age of Pericles.

4. Give an account of the causes, course, and results of the Social War.

5. State the causes of the downfall of Roman freedom, and explain how they operated.

6. Describe the feudal system, state the causes to which it owed its origin, and those which led to its decay.

7. Give a brief account of the history of the early part of Charles the First's reign, so as to show what were the causes of the war between him and the Long Parliament.

8. Tell briefly what you know about the history of England during the reign of George II.

9. Give an account of the events which led to the revolt of the American colonies.

10. State in order the names of the cities and islands you would have passed, if you had sailed along the coast of Asia Minor from the Hellespont to Ilicarnassus, in the fifth century B.C.

11. Trace the course of the Mississippi from its source to its mouth, naming in order its chief tributaries, the principal cities on its banks, and the states past or through which it flows.

12. Give an account of the water system of the Pacific slope of Canada.

13. Sketch in outline the map of France, indicating the course of the chief rivers, and the position of the large cities and mountain ranges.

HISTORY AND GEOGRAPHY.—
HONORS.

(Questions 4, 5, 6, 7, 8, 9, 11, and 13 are for Candidates in Arts; Questions 1, 2, 3, 7, 10, 11, 12, and 13 for Candidates in Medicine.)

1. Give an account of the career of Alexander the Great.

2. Tell what you know about the division of the Western Roman Empire among the northern barbarians.

3. Estimate the influence of the Crusades on the development of European civilization.

4. Give an account of the Revival of Letters, and point out its influence on the history of the sixteenth century.

5. Contrast the religious organization of England in the latter part of the reign of Elizabeth with that of Ontario at the present time.

6. "No event ever marked a deeper or more lasting change in the temper of the English people than the entry of Charles the Second into Whitehall. With it modern England begins."—*Green*.

Explain and illustrate this statement.

7. Give an account of the steps by which

Charles the Second made himself absolute towards the end of his reign.

8. Sketch the development of the system of party government in the reign of Anne.

9. Describe the physical geography of India, state what races inhabit it, what languages are spoken, what its chief exports and imports are, and give an account of its political, religious, and social condition.

10. Give a similar account of Austro-Hungary.

11. State what you would see on a coasting trip from Dover to Leith.

12. Describe briefly the course of the Nile, the Congo, the Missouri, the Hudson, the Ebro, the Rhine, the Amoor, and the Meinam.

13. Describe briefly the course of the Severn (England), the Shannon, the Ottawa, and the Peace River; and state as definitely as you can where Manchester, Inverness, Londonderry, Melbourne, Singapore, Heligoland, Aden, Delhi, and Dundee are situated.

N.B.—As some of these names occur more than once on the map of the world, candidates are directed in every such instance to select the most important place.

ENGLISH.—HONORS.

1. Give an epitome of the play of Macbeth.
2. Sketch briefly the characters of Lady Macbeth, Macbeth, and Duncan, illustrating with quotations.

3. Write a paper upon the employment of the supernatural in the tragedies of Shakespeare, referring particularly to Macbeth.

4.

"To-morrow, and to-morrow, and to-morrow,
Creeps in this pretty pace from day to day,
To the last syllable of recorded time;
And all our yesterdays have lighted fools
The way to dusky death. Out, out, brief candle!
Life's but a walking shadow; a poor player
That struts and frets his hour upon the stage,
And then is heard no more; it is a tale
Told by an idiot, full of sound and fury,
Signifying nothing."

(a) Point out and name all figures of speech in the extract.

(b) Name the metre, and scan lines 1 and 3.

5.

" * * * * * Come, feeling night,
Skaif up the tender eye of pitiful day;

And, with thy bloody and invisible hand,
Cancel, and tear to pieces, that great bond,
Which keeps me pale! Light thickens, and the
crow

Makes wing to the rooky woods;
Good things of day begin to droop and drowse,
Whiles night's black agents to their prey do rouse;
Thou marvell'st at my words; but hold thee still;
Things, bad begun, make strong themselves by ill:
So, pr'ythee, go with me."

(a) Who speaks, and under what circumstances?

(b) Derive *night*, *tender*, *pitiful*, *invisible*, *cancel*, *tear*, *bond*, *whiles*, *agents*, *prey*, *marvell'st*, *themselves*, *pr'ythee*.

6.

"How he solicits heaven
Himself best knows; but strangely visited people,

The *more* despair of surgery he cures;
Hanging a golden stamp about their neck;
Put on with holy prayers; and 'tis spoken
To the succeeding royalty he leaves
The healing benediction."

(a) Analyse this passage.

(b) Parse italicized words.

7. Brief notes on:

Acheron, Hecate, "a vaporous drop profound," Dunsinane, thane, *Norwegian*, *Scone*, "Hyrcan tiger."

MATHEMATICS.

1. Define the Greatest Common Measure and Least Common Multiple of any number of quantities. How is the L. C. M. of a number of fractions found?

Add together $\frac{13}{42}$, $\frac{59}{63}$, $\frac{83}{121}$, $\frac{3}{70}$, $\frac{91}{110}$, $\frac{91}{264}$.

2. Prove the rule for the conversion of a circulating decimal into a vulgar fraction, using a numerical example.

3. Distinguish between interest and discount, and shew that if P , I , D , be respectively the principal sum, and the interest and discount upon it for any given time.

$$\frac{I}{D} = \frac{I}{I} + \frac{I}{P}.$$

4. A person has an income derived from £3,360, which was originally invested in the Four per cents at 96. If he now sells out at 94, and invests one half of the proceeds in Railway Stock at 82½, which pays a dividend of 3 per cent., and the other half in Bank Stock at 164½, paying 8½ per cent.

dividend, what difference will he find in his income?

5. Simplify.

$$(i) \frac{2^n + 4 - 2 \times 2^n}{2^n + 2 \times 4},$$

$$(ii) \frac{x^2 + \left(\frac{a}{b} + \frac{b}{a}\right)xy + y^2}{x^2 + \left(\frac{a}{b} - \frac{b}{a}\right)xy - y^2},$$

$$(iii) \frac{\frac{a^2 + b^2}{b} - a}{\frac{1}{b} - \frac{1}{a}} \times \frac{a^2 - b^2}{a^3 + b^3} \times \left(\frac{a+b}{a-b} + \frac{a-b}{a+b}\right) \times \left(\frac{a}{a+b} + \frac{b}{a-b}\right).$$

6. Divide $6x^5 - 4x^4 - 19x^3 + 23x^2 - 13x + 3$ by $3x^2 - 2x + 1$, (i) in full; (ii) by Horner's method.

7. Prove the rule for finding the G. C. M. of two quantities.

Find the G. C. M. of $(x^3 + x^2y + 3xy^2 + y^3)$ and $(x^3 + 3x^2y + xy^2 - y^3)$.

8. Solve.

$$(i) \frac{3-x}{3+x} - \frac{2-x}{2+x} + \frac{1-x}{1+x} = 1.$$

$$(ii) x^2 + 4.8x + 2.87 = 0.$$

$$(iii) \sqrt{2 + 1 - (2^x - 1)^{-1}} = 0.$$

9. Extract the square root of $32 + 10\sqrt{7}$.

10. Solve.

$$(i) \begin{cases} x + y = a \\ x^4 + y^4 = 14x^2y^2 \end{cases}$$

$$(ii) \begin{cases} \frac{(x+y)^2}{a^2} + \frac{(x-y)^2}{b^2} = 8 \\ x^2 + y^2 = 2(a^2 + b^2) \end{cases}$$

$$(iii) \begin{cases} (x+y)(x^3+y^3) = 1216 \\ x^2 + xy + y^2 = 49. \end{cases}$$

$$(iv) \begin{cases} x^2yz = a \\ y^2zx = b \\ z^2xy = c \end{cases}$$

11. If a side of any triangle be produced, the exterior angle is equal to the two interior and opposite angles; and the three interior angles of every triangle are together equal to two right angles.

The difference of the angles at the base of any triangle is double the angle contained by a line drawn from the vertex perpendicular to the base, and another bisecting the angle at the vertex.

12. To describe a parallelogram that shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.

13. The opposite angles of any quadrilateral figure inscribed in a circle are together equal to two right angles.

If two opposite sides of a quadrilateral figure inscribed in a circle be equal, prove that the other two are parallel.

TRIGONOMETRY—HONORS.

1. Explain the terms *characteristic* and *mantissa*, and state the rule for writing down the characteristic of the logarithm of any number.

Write down the characteristics of '5, '0007 and 60050'3.

What would be the characteristics of these numbers to base 100, and also to base $\frac{1}{10}$.

2. Find the logarithms of $\sqrt[3]{.007}$ and $(.5)^{-3}$.

Find the index of the power to which 7 must be raised to produce 300.

3. Having given

$$\text{Log cot } 57^\circ 30' = 9.804187$$

$$\text{Difference} = 279.$$

Find $\text{Log cot } 57^\circ 30' 15''$, and find the angle, the Log of whose tangent is 9.804251.

4. Find the values $\sin 30^\circ$, $\cos 30^\circ$, and $\sec 45^\circ$.

Write down the tabular logarithms of these ratios.

5. Prove the formulas:

$$(1.) \sin A = \sin (180^\circ - A) = \cos (90^\circ - A).$$

$$(2.) \cos (A - B) = \cos A \cos B + \sin A \sin B.$$

$$(3.) \sin 2A = 2 \sin A \cos A.$$

The angle BAC is bisected by AD . BC and BD are perpendicular to AC and AD . Prove that

$$BA \cdot BC = 2 BD \cdot AD$$

$$\text{and } BA \cdot AC = AD^2 - BD^2$$

6. Shew that

$$(1) \sin 18^\circ \sin 54^\circ = \frac{1}{4}.$$

$$(2) 16 \cos 20^\circ \cos 40^\circ \cos 60^\circ \cos 80^\circ = 1.$$

7. In any triangle, prove the formulas

$$(1) c = a \cos B + b \cos A.$$

$$(2) \tan \frac{1}{2} A = \sqrt{\frac{(s-b)(s-c)}{s(s-a)}}.$$

In the triangle ABC , BD is drawn at right angles to AB , meeting AC in D . Find BD in terms of the sides of the triangle.

8. Solve the equations

(1) $\sin^2 \theta + \sin^2 2\theta = 1$.

(2)
$$\begin{cases} \sin^2 (\theta + \phi) - \sin^2 (\theta - \phi) = \frac{\sqrt{3}}{2} \\ \operatorname{cosec} 2\theta + \cos 2\phi = \frac{2}{\sqrt{3}} \end{cases}$$

9. Solve the triangles

(1) $A = 21^\circ. 10'$, $C = 90^\circ$, $a = 314.16$.

(2) $A = 74^\circ. 53'$, $B = 37^\circ. 55'$, $c = 300$.

10. Find the area of the circle inscribed in the triangle whose sides are 50, 68, and 78.

($\pi = 3.1416$.)

EDUCATION DEPARTMENT, ONTARIO.

July Examinations, 1879.

FIRST-CLASS TEACHERS.

ARITHMETIC.

1. Extract the square root of .000997199-881 to six decimal places, and reduce to its simplest form $\frac{\sqrt[3]{(3.43)} + \sqrt[3]{(.02744)}}{\sqrt[3]{(270)} - \sqrt[3]{(.08)}}$.

2. A cistern holding 1299 gallons is filled by 3 taps, A, B, C, in 30 minutes; A conveys 10 gallons more than B every $2\frac{1}{2}$ minutes, and C 8 gallons less than B in the same time: how much does each supply per minute?

3. At the English Mint 1869 sovereigns are coined from 40 lbs. Troy of standard gold, which is 22 carats fine, and at the French Mint 155 twenty-franc pieces are coined from 2.2072 lbs. (avoirdupois) of gold 90 % fine. The value of the alloy being neglected, find the number of francs in a sovereign, correct to three places of decimals.

4. Two men form a partnership, A contributing \$5500, and B \$4500; it is agreed that each shall receive $7\frac{1}{2}$ % of the profits for managing the business, and that the

remainder shall be divided according to the stocks and times of investment; at the end of 10 months B puts in \$2000 additional capital, but ceases to aid in the management, and agrees that A shall thenceforth receive 15 % of the profits for managing the business; at the end of 12 months from the time of starting, the profits are found to be \$4000: how much of this should each receive?

5. $\log 2 = .3010300$, $\log 3 = .4771213$, find $\log$ of .0000025.

In how many years will \$100 exceed \$1000 at 8 % per annum, compound interest?

6. A grocer sells coffee at a cash price which is $33\frac{1}{3}$ % above cost; he also sells on credit, giving 8 lbs. for what would buy 9 lbs. if paid in cash: how much % above cost is his credit price?

7. Assuming 19 as the specific gravity of gold, and 2.6 as the s. g. of quartz, find the quantity of gold per oz. in a mixture whose s. g. is 7.

8. A dealer purchased, on six months' credit, goods to the amount of \$520; after keeping them three months he sold them on credit for \$577.70, and allowing money to be worth 8 %, he found that he had made $16\frac{3}{4}$ % on the transaction; on what term of credit did he sell the goods?

9. A broker sold a farm for \$6000, charging a certain rate of commission, and invested the proceeds less his charges on both transactions in city property, receiving on the latter a commission of 4 % on the price paid; his entire commission was \$375: what rate did he charge on the sale of the farm?

10. (I.) A field in the form of a sector of a circle has its radius 80 yards, and its angle $112^\circ 30'$: find its area and the length of its arc.

(II.) The sides of a quadrilateral are 3, 4, 5, and 6, the first and last being parallel: find its area.

ALGEBRA.

1. Prove that $2[(a-b)^7 + (b-c)^7 + (c-a)^7] = 7(a-b)(b-c)(c-a)[(a-b)^4 + (b-c)^4 + (c-a)^4]$.

2. Extract the square root of $ab - 2a\sqrt{ab - a^2}$, and find the simplest real forms of the expression

$$\sqrt{3 + 4\sqrt{-1}} + \sqrt{3 - 4\sqrt{-1}}.$$

3. Solve the equations :

$$(1). 2x^4 + x^3 - 11x^2 + x + 2 = 0.$$

$$(2). x^2 + y^2 + z^2 = a^2$$

$$yz + zx + xy = b^2$$

$$x + y + z = c.$$

$$(3). \sqrt{x^2 + 5x + 4} + \sqrt{x^2 + 3x - 4} = x + 4.$$

4. Prove that the number of positive integral solutions of the equation $ax + by = c$ cannot exceed $\frac{c}{ab} + 1$.

In how many ways may £11 15s. be paid in half-guineas and half-crowns?

If $xy = ab(a+b)$, and $x^2 - xy + y^2 = a^3 + b^3$, shew that $\left(\frac{x}{a} - \frac{y}{b}\right)\left(\frac{x}{b} - \frac{y}{a}\right) = 0$.

6. Given the sum of an arithmetical series, the first term, and the common difference, shew how to find the number of terms. Explain the negative result. *Ex.* How many terms of the series 6, 10, 14, &c., amount to 96?

7. Find the relation between p and q , when $x^3 + px + q = 0$ has two equal roots, and determine the values of m which will make $x^2 + max + a^2$ a factor of $x^4 - ax^3 + a^2x^2 - a^3x + a^4$.

8. In the scale of relation in which the radix is r , shew that the sum of the digits divided by $r - 1$ gives the same remainder as the number itself divided by $r - 1$.

9. Assuming the Binomial Theorem for a positive integral index, prove it in the case of the index being a positive fraction.

Shew that the sum of the squares of the co-efficients in the expansion of $(1+x)^n$ is $2n \div \left(\frac{n}{2}\right)^2$, n being a positive integer.

10. Sum the following series :—

$$(1). 1 + 3x + 5x^2 + 7x^3 + \&c. \text{ to } n \text{ terms.}$$

$$(2). \frac{1}{3 \times 8} + \frac{1}{8 \times 13} + \&c. \text{ to } n \text{ terms and to infinity.}$$

11. Shew that $\begin{vmatrix} bc, & -ac, & -ab \\ b^2 - c^2, & a^2 + 2ac, & -a^2 - 2ab \\ c^2, & c^2, & (a+b)^2 \end{vmatrix}$ is divisible by $abc(a+b+c)$.

EUCLID.

[N.B.—Sixty marks to each question : 225 marks to count a full paper.]

1. In any right-angled triangle, the square which is described on the side subtending the right angle, is equal to the square described on the sides which contain the right angle.

AB, AC are two finite straight lines, from *B* a perpendicular *BD* is let fall on *AC* (produced if necessary), and from *C* a perpendicular *CE* is let fall on *AB* (produced if necessary). The rectangle contained by *AB* and *AE* is equal to the rectangle contained by *AC* and *AD*. (To be proved by Book I.)

2. The angles in the same segment of a circle are equal to one another.

In a right-angled triangle, the straight line joining the right angle to the point of intersection of the diagonals of the square described on the hypotenuse (on the side remote from the right angle) will bisect the right angle.

3. In a circle, the angle in a semi-circle is a right angle; and the angle in a segment greater than a semi-circle is less than a right angle; and the angle in a segment less than a semi-circle is greater than a right angle.

ABC is a triangle and *O* is the centre of its inscribed circle. Show that *AO* passes through the centre of the circle described about *BOC*.

4. If two triangles have one angle of the one equal to one angle of the other, and the sides about the equal angles proportionals, the triangles must be equi-angular to one another and must have those angles equal, which are opposite to the homologous sides.

The side *BC* of a triangle *ABC* is produced to *D* so that *AD* is a mean proportional to *BD* and *DC*, show how to determine the position of the point *D*.

5. The sides about the equal angles of triangles which are equi-angular to one another, are proportionals; and those which are opposite to the equal angles, are homologous sides.

From the angular points, *A, B, C*, of a triangle straight lines are drawn through any the same point in the plane of the triangle and meet the sides *BC, CA, AB* (produced

if necessary) in α , b , and c respectively. AB and ca (produced if necessary) meet in b'' , prove that $Ab : bC :: Ab'' : Cb''$.

EDUCATION.

1. Distinguish between mental assimilation and *cram*.

2. Show how you would make questioning efficient as an instrument of teaching as well as testing.

3. Indicate fully the teacher's equipments as to the following: (a) Personal qualifications. (b) Habits. (c) Studies. (d) School Room and Furniture.

4. Show how you would teach Geography. (1) For mere information. (2) As an instrument of intellectual discipline.

5. Discuss the value of false Orthography as a means of teaching spelling, intimating whether you approve or disapprove, and why?

6. Distinguish between teaching Reading as a vocal art and a source of intellectual culture, indicating what is included in each division.

7. "Nature presents to the inquirer first the concrete then the abstract, first things then signs for words or things; first facts and phenomena then laws and principles; first wholes and then parts or collections of wholes."—*Wickersham*.

To the study of what subjects are these principles particularly applicable, and in what way? Answer fully.

SCHOOL LAW.

1. In what way may the office of School Trustee become vacant?

2. What Government and Municipal grants are given to schools, and how are these grants distributed?

3. What must be done (i.) in case of difference of opinion between School Auditors on any matter in the school accounts, (ii.) if both Auditors object to the lawfulness of any expenditure?

4. Give in full the law relating to the Superannuation of Teachers.

5. What powers are vested (i.) in Town-

ship Councils, (ii.) in County Councils, to change the boundaries of school sections?

6. What is the law relating to—

(i.) The collection of school rates?

(ii.) Attendance of non-resident children?

(iii.) Contract between a trustee and the corporation of which he is a member?

(iv.) Payment of teachers' salaries?

(v.) Expulsion of a child from school?

7. Give a short synopsis of the School Act of 1879.

CHEMISTRY.

1. Explain the principles on which the determination of atomic weights is based. One part by weight of hydrogen is combined with three parts by weight of carbon in marsh-gas, with six parts by weight of carbon in olefiant-gas, and with twelve parts by weight of carbon in acetylene. Again, one part by weight of hydrogen is combined with eight parts by weight of oxygen in water, and eight parts by weight of oxygen are combined with three parts by weight of carbon in carbonic anhydride, and with six parts by weight of carbon in carbonic oxide. Why is the atomic weight of carbon taken as 12 instead of as 6 or as 3?

2. What is understood by the theory of atomicity? What atomicity or quantivalence do you assign to nitrogen, arsenic, iron, and copper respectively, and why? Give the formulæ of the most important compounds which these elements form with hydrogen, chlorine, oxygen, and sulphur respectively.

3. What is a *compound radicle*? Give examples. Select the compound radicles from among the following: KCl , H_3N , H_4N , HO , KHO , SO_2 , SO_3 .

4. Ten grains of air are passed at a very high temperature over an excess of carbon. What product is formed, and what is the approximate weight of it?

5. What compounds of sulphur are there which in their constitution and general reactions resemble the corresponding compounds of oxygen? How is sulphur now recovered from alkali-waste? What are the

respective formulæ of iron pyrites, copper pyrites, zinc blende, realgar, galena, and cinnabar? What are the products furnished by these several minerals when heated in presence of air?

6. Draw a comparison between sodium and potassium compounds in respect of their occurrence in nature, and in respect of the difference of properties manifested by corresponding potassium and sodium compounds. Give illustrations of double decompositions taking place between potassium and sodium salts.

7. On testing a certain liquid you find that it reddens blue litmus-paper. What conclusion can you draw from this?

Had the liquid burned reddened litmus-paper blue, what conclusion could you have drawn?

8. What chemical changes occur when an aqueous solution of potassium iodide is added to an aqueous solution of each of the following salts:—Mercuric chloride, lead nitrate, sodium sulphate, silver nitrate, and sodium sulphite?

9. You are given seven test tubes, and are told that in one there is pure water, and in the other six there are respectively aqueous solutions of silver nitrate, copper nitrate, zinc sulphate, calcium chloride, magnesium sulphate, and potassium nitrate. How could you determine which test tube contained the pure water, which the silver nitrate, which the copper nitrate, &c.?

SECOND-CLASS TEACHERS.

ARITHMETIC.

1. (a) Divide $84'332476$ by 12.734 .

(b) The circumference of a circle divided by 3.1415926 gives the diameter nearly; what multiplier of five decimal places may be used instead of this divisor?

2. Show how to find the G.C.M. and the L.C.M. of two or more fractional numbers.

The G.C.M. of two fractional numbers is $\frac{1}{10}$, and their L.C.M. is $34\frac{1}{2}$; one of the numbers is $2\frac{1}{10}$, find the other.

3. Sterling exchange is quoted in Toronto

at $109\frac{1}{2}$ for 60-day bills; what must be paid for a 60-day bill for £45 8s. 6d.?

4. The old wine gallon is 231 cubic inches; the cubic inch is .000016386 cubic metres, and the imperial gallon is $4'54102$ litres; how many imperial gallons are there in 157 wine gallons?

5. There are two clocks, one of which loses $3\frac{1}{2}$ minutes a day, and the other gains $3\frac{1}{2}$ minutes a day; the latter marks a time 25 minutes in advance of the former: when will both clocks mark the same time?

6. A person had stock of the Dominion Bank; he received a half-yearly dividend of $4\frac{1}{4}$ per cent., which he invested in the same stock at $113\frac{1}{2}$, and his entire stock was now \$16,600; how much stock had he at first?

7. If 5 men earn as much in a day as 8 women, and 2 women as much as 3 boys, and if 7 men, 12 women, and 20 boys earn \$205.50 in 6 days, what amount will be earned in 8 days by 6 men, 10 women, and 24 boys?

8. If 12 lbs. avoirdupois of American standard silver, which is 90 per cent. fine, be coined into 175 dollars; and if the value of the alloy be $37\frac{1}{2}$ per cent. of that of pure silver, find the value of one pound Troy of the alloy.

9. A merchant imported 700 yards of silk and marked it to gain, as he supposed, 25 per cent.; but having neglected to take into account a charge of \$125 for freight and duty, he made only $6\frac{2}{3}$ per cent. profit: find the invoice price of the silk.

10. (1) How many yards of painting are there in the walls of a room 20 ft. long, 14 ft. 6 in. wide, and 10 ft. 4 in. high, allowing for a fire-place 4 ft. by 4 ft. 4 in., and two windows each 6 ft. by 3 ft. 2 in?

(2) Find the number of cubic feet in a hollow cylinder, the external circumference of which is 5 ft. 6 in., the internal circumference 3 ft. 8 in., and the length 18 feet.

EUCLID.

1. (a) Define straight line, segment of a circle, rectilineal angle, trapezium, superficies.

(b) From the XVIII. and XXXII. propositions, Book I., deduce, respectively, the

proof of the VI. and of the XVII. propositions.

2. To make a triangle of which the sides shall be equal to three straight lines, but any two of these must be greater than the third.

3. If a straight line fall upon two parallel straight lines it makes the two interior angles upon the same side together equal to two right angles, and also the alternate angles equal to each other, and also the exterior angle equal to the interior and opposite angle upon the same side.

4. In any right-angled triangle the square which is described on the side subtending the right angle is equal to the squares described on the sides containing the right angle.

5. If a straight line be divided into any two parts the squares on the whole line and on one of the parts are equal to twice the rectangle contained by the whole and that part together with the square on the other part.

6. To describe a square that shall be equal to a given rectilinear figure.

7. In the ordinary figure of the 47th proposition, Book I., if the corners of the squares be joined externally, prove that the three triangles thus formed are equal to one another.

8. If ABCD be a quadrilateral, and E the bisection of the diagonal BD, and if through E a line, FEG, be drawn parallel to AC, and meeting AB in F and BC in G, shew that AG will bisect the given figure.

9. If A be the vertex of an isoscles triangle ABC, and CD be drawn perpendicular to AB, prove that the squares upon the three sides are together equal to the square on BD, and twice the square on AD and thrice the square on CD.

10. Any rectangle is half the rectangle contained by the diameters of the squares upon its two sides.

ALGEBRA.

1. Simplify.

$$\left(\frac{ax^2 - ay^2 + 2bxy}{x^2 + y^2} \right)^2 + \left(\frac{by^2 - bx^2 + 2axy}{x^2 + y^2} \right)^2$$

2. Divide $a^8 - b^8 - c^8 - 3abc$ by $a - b - c$, and show, without expansion, that

$$(1 + x + x^2)^3 - (1 - x + x^2)^3 - 6x(x^4 + x^2 + 1) - 8x^3 = 0.$$

3. Resolve into factors $x^4 - \frac{1}{4}x^2y^2 + y^4$, and

$$7x^2 - 6y^2 - xy + 19x + 33y - 36;$$

and prove that $b^2(c+a) + c^2(a+b) - a^2(b+c) + abc$ is exactly divisible by $b+c-a$.

4. Apply Horner's method of division to find the value of $5x^5 + 497x^4 + 200x^3 + 196x^2 - 218x - 2000$ when $x = -99$, and the value of $6x^5 + 5x^4 - 17x^3 - 6x^2 + 10x - 2$ when $2x^2 = -3x + 1$.

5. Find what

$$\frac{\sqrt{(a+x)} + \sqrt{(a-x)}}{\sqrt{(a+x)} - \sqrt{(a-x)}} \text{ becomes when } x = \frac{2ab}{1+b^2}.$$

6. If a and b be any positive numbers, prove that

$$\frac{1}{a} + \frac{a}{1+a} > 1, \quad \frac{a}{b} + \frac{b}{a} > 2.$$

7. Solve the equations—

$$(1) \quad x^{\frac{1}{2}} + y^{\frac{1}{2}} = 5 \\ \frac{-\frac{1}{2}}{x} + \frac{-\frac{1}{2}}{y} = \frac{8}{5}.$$

$$(2) \quad \begin{aligned} x + 2y + 3z &= 14 \\ 2x + 3y + z &= 11 \\ 3x + y + 2z &= 11. \end{aligned}$$

$$(3) \quad (x+1)(x+3)(x+4)(x+6) = 16.$$

8. There are three consecutive numbers such that the sum of their cubes is equal to $16\frac{2}{3}$ times the product of the two higher numbers: find the numbers.

9. (1) Form an equation three of whose roots are 0, $\sqrt{-3}$, and $1 - \sqrt{2}$.

(2) If one of the roots of the equation $x^2 + px + q = 0$, is a mean proportional between p and q , prove that $p^3 = q(1+p)^2$.

10. Two trains start at the same instant, the one from B to A, the other from A to B; they meet in $1\frac{1}{2}$ hours; and the train for A reaches its destination $52\frac{1}{2}$ minutes before the other train reaches B: compare the rates of the trains.

NATURAL PHILOSOPHY.

1. How are static forces measured?

State the principle of the transmissibility of force.

By what experiments could this principle be illustrated, (1) for pressures, (2) for tensions?

A string, $ABCD$, is suspended from the point A . At the point B , a weight of 8 oz. is attached, at C a weight of 6 oz. is attached, and at D a weight of 2 oz. is attached. Find the tension of the string between A and B , between B and C , and between C and D .

2. Enunciate the Triangle of Forces, explaining your enunciation by means of a diagram in which the directions of action of the forces are marked by arrows. Mark also the point of application of the forces.

Show that *perpendicular* may be substituted for *parallel* in the enunciation.

A weight of 51 lbs. hangs by two cords, AB 8 feet long and AC 15 feet long. The cords, which act at right angles to one another, are fastened to the points B and C , BC being horizontal. Find the tension of the cords. (Explain your solution by means of a diagram.)

3. The moment of a given force about a given point is the same, no matter at what point in its line of action the force is supposed to act.

Two boys carry a pail of water weighing 21 lbs., by means of a stick weighing one pound. What weight does each boy support, the pail being hung 15 inches from one boy and 21 inches from the other, the centre of gravity of the stick being mid-way between the boys.

4. Show how to determine (whenever possible) the position of the centre of two parallel forces.

How can the centre of gravity of a body be determined experimentally?

A uniform rectangular board, $ABCD$, is suspended from the angular point A . To the angular point B is suspended a weight of 7 oz. Given that AB is 5 inches and BC 12 inches, and that the weight of the board is 6 oz., find where the vertical line through A will cut the diagonal BD .

5. State the principle of virtual velocities. Define the term virtual velocity.

With what force must a horse pull in order to draw a load of 1105 lbs. up an incline of 21 in 221 (measured along the plane), the

traction being parallel to the plane? (Solve by virtual velocities.)

6. "Any force, however small, may, by the transmission of its pressure through a fluid, be made to support any weight however large." Explain how this is possible.

Describe any machine constructed to take advantage of this principle.

A tube whose internal cross-section is one square inch opens freely into a water-tank whose internal horizontal section is 5 square feet. In the tube there works a piston. What pressure would be exerted on the piston by the water in the tank rising to a height of 12 feet above the level of the piston. (A cubic foot of water weighs 1000 oz.)

7. Describe the siphon and explain the principle of its action.

A siphon filled with water has its ends inserted into water contained in two reservoirs of equal dimensions, the level of the surface of the water in one reservoir being 20 feet below the surface of the water in the other. State what would take place were the vertical distance of the highest point of the siphon i. 20, ii. 30, iii. 35 feet above the surface of the water in the upper reservoir. Given the specific gravity of mercury 13.57, and assuming the mercury-barometer to be standing at 30 inches.

CHEMISTRY.

1. What is understood in chemistry by the expression an "element" or an "elementary body?"

How could you show that air is not an element?

What is the difference between a mechanical mixture and a chemical compound?

How could you show that Nitrogen Monoxide is a chemical compound?

2. Describe any method of preparing Oxygen.

Write in symbols the reaction that occurs when Oxygen is prepared from Potassium Chlorate.

You are given three vessels, and are told that one contains Oxygen; one, Nitrogen Monoxide; and one, Common Air: how would you determine which vessel contains the Oxygen?

What volume of Oxygen will 8 ounces of Potassium Chlorate yield; a cubic foot of Hydrogen at 60° F. and 30 ins. Bar. weighing 37 grains? ($K=39.1$.)

3. How may Nitrogen, Nitric Oxide (NO), Nitrous Anhydride (N_2O_3), and Nitrogen Peroxide (NO_2) be severally obtained from Nitric Acid or a Nitrate?

4. How could you distinguish Carbon Dioxide from Nitrogen?

The gas that sometimes collects at the bottom of deep wells is said to be Carbon Dioxide. By what experiments could you test the correctness of this statement?

How could you distinguish between Marsh Gas and Hydrogen?

Between Olefiant Gas and Carbon Monoxide.

5. In what respects does Sulphur resemble Oxygen?

By what other means, besides burning Sulphur, can Sulphur Dioxide be prepared?

Explain its action with solutions (1) of Potash, (2) of Chlorine.

6. How much Phosphorus is contained in 120 lbs. of bone-ash consisting of 88.4 per cent. of $Ca_3(PO_4)_2$ and 11.5 per cent. of $CaCO_3$? ($Ca=40$.)

What volume of Hydrogen is contained in one ounce of Microcosmic Salt $NaNH_4HPO_4 \cdot 4H_2O$? (37 grains of hydrogen to the cubic foot; $Na=23$.)

7. What is the simplest formula that can be assigned to a substance containing

Carbon, 54.5 }
Hydrogen, 9.2 } per cent?
Oxygen, 36.3 }

8. The chimney-glass increases the brightness of the flame of the common coal-oil lamp; why does it do so?

If you drive a current of air *into* the flame of an ordinary candle, the flame appears less bright than it did before the introduction of the air. Explain why this is the case.

THIRD-CLASS TEACHERS.

ARITHMETIC.

1. Shew that $\frac{3}{8} = \frac{9}{24}$ and that $\frac{5}{6} = 9 \div 5$. Simplify

$$\left\{ 2\frac{1}{2} \times 4.75 \div \frac{2}{3} \text{ of } (4\frac{1}{2} - 3\frac{3}{8}) + \frac{1.75}{3\frac{1}{2}} + \frac{4\frac{3}{8}}{21.5} \right\} \div \frac{2\frac{7}{8}}{13\frac{1}{2} \div 25} \left\{ \text{of } (3\frac{1}{2} \times \frac{9}{8} \div .9) \text{ of } (\pounds 15 \text{ } 16s. \text{ } 8d.) \right\}$$

2. Explain the rule for "pointing" in division of decimal numbers.

Divide 31.47 by 839.2765 correct to five decimal places, and find the product of 3.706205 by .0034005 correct to six decimal places. [20 marks if done by contracted methods, otherwise 10 marks.]

3. Extract the square root of .097199881 to six decimal places.

Simplify

$$(\pounds .54 - 23\pounds .0000390625) \div (\pounds .16 + \pounds .02).$$

4. A rectangular courtyard, 180 feet long and 135 feet wide, has a path running round it of the uniform width of 10 feet 6 inches; the path is covered with gravel at a cost of 22½ cents a square yard, and the remainder of the courtyard is covered with turf at a cost of 17½ cents per 100 square feet: find the entire cost.

5. The amount at simple interest, of a sum of money at a certain rate per cent. is \$693.33 for 8 years, and \$640.80½ for 5½ years: find the principal and the rate per cent.

6. A grocer mixed two kinds of wine, worth, respectively, \$2.40 and \$3.20 a gallon, in such proportion that by selling the mixture at \$2.80 a gallon he made a profit of 10%: find the proportion in which the wines were mixed.

7. A merchant invested a sum of money in Federal Bank stock at 112, and after receiving a half-year's dividend at 4 per cent., he immediately sold out at 115¾; he received altogether (*i.e.* from dividend and profit on sale of stock) \$310 more than he had invested. Find the amount originally invested.

8. A and B form a partnership, A's capital being to B's as 5:8; at the end of 6½ months A withdraws 20 per cent. of his capital, and a month after, B withdraws 33½ of his capital; at the end of the year the profits are found to be \$3047: how should this be divided?

9. A note drawn at 135 days, with interest at 8 per cent. per annum, is discounted by a broker 75 days before maturity; the broker gives \$375.80 for the note and makes at the rate of 10 per cent. per annum on his money. Find the amount for which the note was drawn.

10. Ascertain the cost, at \$35.10 per ton of 2000 lbs., of 864 yards of iron piping, 25 inches internal diameter and half an inch thick, assuming the specific gravity of iron to be 7.77 and a cubic foot of water to weigh 62½ lbs. ($\pi=3\frac{1}{2}$).

ANSWERS.

1. £8 15s. 7d.
2. (1) .072603; (2) .03750.
3. (1) .311769; (2) .0416.
4. \$186.07+.
5. \$525.25; 4 per cent.
6. 9 of cheaper to 2 of dearer.
7. \$4480.
8. \$1199, \$1848.
9. \$372.50.
10. \$6147.31+.

ALGEBRA.

1. Find the value of $3x^3 + 54x^2 + 50x^2 - 19x^2 - 35x - 18$ when $x = -17$.
2. Demonstrate the identities :
 - (a) $(5m^2 + 4mn + n^2)^2 - (3m^2 + 4mn + n^2)^2 = 4m^2(2m + n)^2$.
 - (b) $(a + b + c)(ab + bc + ca) - abc = (a + b)(b + c)(c + a)$.
 - (c) $(a - b)(c - d) + (b - c)(a - d) + (c - a)(b + d) = 0$.
3. Divide $(m^2 + an^2)(x^2 + ay^2) - a(nx - my)^2$ by $mx + ny$.
4. Prove that if from the square of the sum of two numbers there be taken four times their product, the remainder is a square.
5. Solve.
 - (a). $(x - 1)(x - 2) - (x - 3)(x - 4) = 3$.
 - (b). $\frac{2}{x - 1} + \frac{3}{x - 2} = \frac{8}{x^2 - 3x + 2}$.
 - (c). $(x - a)(b - c) + (x - b)(c - a) + (x - c)(a - b) = x - a - b - c$.
6. What value of x will make $x^2 + 2ax + b^2$ the square of $x + c$? What is the result when $a = b = c$?

7. A man is thrice as old as his son, five years ago he was four times as old; how old is he?

ANSWERS.

1. -1.
3. $mx + any$.
5. (a), $3\frac{1}{4}$; (b), 3; (c), $a + b + c$.
6. $\frac{c^2 - b^2}{2(a - c)}$.
7. 45 years.

EUCLID.

[N.B.—Eight questions to count a full paper; value, 12½ for each.]

1. [a] Define Scalene Triangle, Point, Straight Line, Square, and distinguish between Problem and Theorem, Direct and Indirect demonstrations.

[b] What propositions in Euclid, Book I, are proved by the latter method?

2. If one side of a triangle be produced the exterior angle is greater than either of the interior opposite angles. Give full proof for one exterior angle.

3. The greater angle of every triangle has the greater side opposite to it.

4. The straight lines which join the extremities of two equal and parallel straight lines towards the same parts, are also themselves equal and parallel.

5. Equal triangles on the same base and on the same side of it are between the same parallels.

6. To describe a parallelogram equal to a given rectilineal figure, and having one of its angles equal to a given rectilineal angle.

7. The difference between any two sides of a triangle is less than the third side.

8. From a given point draw a line making equal angles with two given lines.

9. Straight lines bisecting two adjacent angles of a parallelogram intersect at right angles.

ENGLISH GRAMMAR AND ETYMOLOGY.

1. Explain the terms Apposition, Intransitive Verb, Distributive Pronoun, Pluperfect Tense, Compound Sentence, strong and weak Conjugation, giving an example of each.

2. Write the singular of kine, banditti, virtuosi, Messrs., genera, phenomena; the

other degrees of comparison of silly, particular, ill, utmost; the masculine of countess, hind, madam; also the present participle, the past tense, and the past participle of bid, eat, espy, lay, seethe, fetch, confer, pay.

3. Construct sentences showing how *but* and *as* are sometimes used like relative pronouns.

4. Of the italicised words or phrases in the following, which is the more correct, and why?

(a) I am the person that *am* . . . *is* responsible.

(b) The rose smells *sweet* . . . *sweetly*.

(c) I had hoped *to see you* . . . *to have seen you* before.

(d) *Whom* . . . *Who* do you take me to be?

(e) *John's* . . . *John* having been imprudent led to his ruin.

(f) Four times six *are* . . . *is* twenty-four.

5. Criticize these passages, and suggest improvements where necessary:

(a) He seemed sort of discouraged like and said he had never succeeded and never expected to.

(b) I thought I would have died with hunger.

(c) One may accomplish almost anything if only they give their mind to it.

(d) He has not been here neither last week or this.

(e) I never have, and never will consent to the scheme, though it possesses some features which are far more preferable than the present.

6. Parse the italicised words in the following:

(a) *The more* he reads, *the less* he reflects.

(b) He has forty pounds *a* year.

(c) "*News of battle!* who *hath brought it?*"

All *are thronging* to the gate;

Warder, warder! *open quickly!*

Man, is this a time to wait?"

(d) "*Down* they push into *that* narrow valley, conquerors and *conquered*; but his clear eye *sees when to stay* the pursuit. He drives them *fairly* from the field, *far enough* to *prevent* them rallying, then he *as* quickly returns to it."

Explain accurately the meaning of 'fairly' and 'as' in the last passage.

7. Divide into propositions, stating the kind and relation of each: "The man who will go into a cotton mill, and contemplate it from the great water-wheel that gives the first movement, (and still more from the steam engine, should that be the moving power,) who will observe the parts of the machinery, and the various processes of the fabric, till he reaches the hydraulic press with which it is made into a ball, and the canal or railroad by which it is sent to market, may find every^o branch of trade, and every department of science, literally crossed, intertwined, interwoven with every other, like the wool and the warp of the article manufactured."

Give the full analysis of any *two* of the subordinate propositions.

8. Write the Latin words meaning 'send,' 'take,' 'head,' 'lead,' 'come,' 'flower,' 'sit,' 'death,' 'live,' 'place,' and give a list of English derivatives from each.

9. Show the origin and meaning of the prefix in 'ashore,' 'intrude,' 'benumb,' 'forget,' 'misconceive,' 'subterfuge,' 'retrograde,' 'effervesce.'

SCIENCE DEPARTMENT.

[A series of notes prepared for the Monthly, by Henry Montgomery, M.A., Coll. Inst., Toronto].

THE *Megaceros Hibernicus* or *Cervus Megaceros* is familiar to our readers under the name of the "Irish elk." This extinct animal, related to the stag, was of great bulk, and possessed enormous palmated antlers, measuring ten or twelve feet from tip to tip. It has been found in Ireland, on the Isle of Man, in the South of England, in Scotland, and in many parts of Europe. A few years ago Mr. A. Pride, of Toronto University Museum, brought to this country from the county of Limerick, three skeletons of this so-called elk, two of which were afterwards purchased by museums in New York and Cambridge (Massachusetts). Dr. Wilson called attention to the *Megaceros* last year in a paper written after a visit to Ballybetagh bog in the vicinity of Dublin, where many remains of this extinct gigantic stag have from time to time been discovered.

That gentleman stated, what has for years been generally held, that the *Megaceros Hibernicus* had died out in Ireland before man appeared on that island. He also suggested two probable causes for its disappearance, viz.: (1) the restriction of its habitat by the encroachment of the ocean in the post-glacial period, and (2) the great disproportion which existed between the size and weight of its antlers and the size of its body. With respect to the belief in its extinction in Ireland before the arrival of man, it may be observed that there is good reason for believing it to have been co-existent with man during the early stone age in England and France, and also that there has been some dispute about certain markings on bones found in Ireland. The markings and incisions alluded to were shown by Mr. Jukes, before the British As-

sociation, and afterwards by Dr. Carte, before the Royal Geological Society for Ireland, to be markings not made by the hand of man, but produced by the pressure and friction of the bones and horns against one another, in conjunction with the movements of the bogs and their other contents. Most assuredly the marks which we have had the opportunity of examining, and which are very distinctly shown on elk bones in Mr. Pride's possession, do not present indications of having been formed by man. Their smooth, polished, and occasionally wavy surface presents rather the appearance of what might be produced by the grinding action of one bone upon another. Quite recently, however, it has been claimed that new evidence has been gained by the discovery of a cave in the south of Ireland, at Cappoquin, Waterford Co., about seven miles distant from the famous Shandon cave found more than twenty years ago near Dungarvan. Bones of other deer and of bears also occur in both these caves; but the important point to be noticed is that many of the elk bones removed from this cave, according to Prof. Adams, "were evidently split for their marrow, and several of the cannon-bones were fashioned into awls and gauges, showing that man was contemporaneous with the *Megaceros*, and also may have in some measure helped to exterminate it."

WITH the exception of some fungi, all plants take carbonic acid gas into their bodies through the stomata of the leaves, decompose it, emit the oxygen, and retain the carbon, which, with water, they form into starch. This is a *digestive* process. Plants also have a *respiratory* process, inhaling oxygen and

giving out carbonic acid gas in much the same way as animals respire, only not to the same extent. On the other hand, in the animal kingdom the cellulose form of starch is to be found in the "test" or shell of the "Seasquirt," or Ascidian Mollusc; and glycogen is produced by the liver; but no animal has hitherto been known to take in any considerable quantity of carbonic acid gas, separate it into its elements, keep the carbon and emit a stream of oxygen gas. Hence this function, which belongs to the great majority of plants and up to the present time has been thought to be completely wanting in all animals, has long been made use of as a distinguishing characteristic in the separation of the lower forms of life. Yet such a condition seems actually to exist in certain animals. Mr. Geddes has laid before the Royal Society the results of a series of experiments undertaken by him upon *Convoluta Schultzei*, one of the Planarians, ciliated aquatic flat worms allied to the "flukes." It was shown that this marine worm, when exposed to sunlight, acted in a manner similar to plants, drawing in carbonic acid gas, and sending out gaseous bubbles, more than half of which consisted of free oxygen. Mr. Geddes also analysed the bodies of convolutæ and obtained vegetable starch therefrom. In consequence he has termed them Vegetating Animals.

THE advisability of making a canal across Central America, so as to connect the two great oceans, has been under discussion during the past thirty years, and at length its construction has been determined upon. Four years ago Lieutenant Wyse, of the French Navy, suggested the propriety of appointing an international jury or committee to examine all the reports and various schemes submitted, and report their decision as to the most profitable and least expensive route to be taken. This committee or international congress was appointed, with M. De Lesseps as president; and at its meeting in Paris seven different routes were considered. Lieut. Wyse, assisted by an able staff of engineers and surveyors, has explored five routes, four of which are in Panama and the northern part of

Columbia, and one in the north, running from Greytown on the Atlantic, by San Juan River and Lake Nicaragua to Brito Bay on the Pacific. The last mentioned route does not appear to have received much favour, the chief objections to it being the absence of ports, the unhealthiness of the climate in the greater part of its length, and the fact that it would require twenty-one locks. The route recommended by Lieut. Wyse, and, we understand, adopted by the committee, is about 47 miles in length, and requiring no locks, and less than four miles of tunnel. It is provided with good ports, will pass through Panama near its centre—a thickly inhabited district, and will cost little more than 50,000,000 dollars. The concession for the canal has been transferred to M. De Lesseps, who is enthusiastic over this vast commercial enterprise, and regards its difficulties as far less formidable than those of the Suez.

IN the present age, when iron has come to be a *sine qua non* in civilized nations, it is very assuring to learn that the sources of that invaluable metal are so numerous and immense as to preclude all possibility of their being exhausted by man for many ages to come. Besides the various British, Swedish, and other iron mines which are or have been in operation, yielding hundreds of thousands of tons every year, many fields rich in iron ore are known to exist in different countries. For example, in the Province of Ontario, in the Laurentian rocks, there is a great abundance of excellent magnetic iron ore waiting to be mined by energetic capitalists; and lately intelligence has arrived of extensive masses of iron having been discovered in Greenland. At first the Greenland iron was conjectured to be of meteoric origin, but by recent investigation it has proved to be a geological production of a great lava-field that extends over the northern part of that country.

IN a Report on the "Examination of Pork with Reference to Trichinae," by Mr. H. F. Atwood, Vice-President of Illinois State

Microscopical Society, and Dr. Belfield, of the Cook County Hospital, it is stated that eight out of every hundred hogs examined were trichinous, and that trichinous pigs usually show no signs of being unhealthy. For the detection of trichinæ in pork the only certain means consist in its examination under a good microscope. In reply to the question, "Since eight per cent. of our hogs are trichinous, why are cases of trichinosis so rare?" it is said that "in most instances the meat is previously subjected to thorough cooking, whereby the worms are killed; and that in consequence of the close resemblance of the symptoms of trichinosis to those induced by other causes, notably typhoid fever, it is probable that in some instances it has been mistaken for other complaints." And again, in the conclusion of their report, the necessity for the thorough cooking of pork as a preparation for the table is emphasized. This caution is hardly needed by any one who has given even a little attention to the nature and habits of the parasitic worms referred to, or of the tape-worms (*Tæniadæ*); but it does seem necessary frequently to repeat it for the benefit of persons under the delusion that partially or wholly raw meat is more wholesome than that which has been carefully and properly cooked.

THE water supply is a question that demands the serious consideration of all good citizens. It is indeed a great and a world-wide question; one that is agitating the public mind of the most civilized nations of the day, —Great Britain, Canada, the United States, and Germany. There are, of course, many natural causes leading to the impurity of water. Instances of naturally impure water-supplies occur in the cases of those towns which are situated above saline or alkaline deposits. Leamington, in England, may be taken as an example. The corporation at the depth of three hundred and forty-six feet found the water to contain such a quantity of salt as to be totally unfit for ordinary use. On the advice of Professor Ramsay, Director-General of the Geological Survey, they sought for spring water at the foot of a hill a mile

distant, and obtained the large supply of two million gallons per day of pure healthful water. At Rugby, after 1000 feet, nothing but salt water could be obtained. But in addition to natural causes there are others attributable to man. The rate at which towns and cities multiply in number and increase in population, the rapid growth of industries, as well as certain habits and tendencies of modern society, all combine together to produce a deterioration of the waters of wells, rivers, and, in some instances, even lakes. Dr. Holt, Sanitary Inspector of the Fourth District of New Orleans, in his report for the year 1878—a year never to be forgotten in the history of that city, the mortality being 10,318, and of these 4,046 having died of yellow fever,—shows clearly that the well-water there is in a filthy condition. He says, "specimens of subsoil water taken from different depths, as low as ninety-five feet, and from different parts of the city, have been carefully analysed by Prof. Joseph Jones, and have yielded a large percentage of urea and organic matters the products of animal excretion, fully fifty-three grains to every gallon." Hear also what Prof. Joseph Jones says concerning the same waters:—"these waters are suitable neither for drinking, nor for washing, nor for cooking. In fact they are as bad as, if not worse than, the drainings of grave-yards." Another illustration is afforded by the village of Geneva, on the shore of Seneca Lake, N. Y. It has heretofore been regarded as delightfully healthy, and peculiarly free from epidemics; but during the past winter it was visited by a terrible pestilence in the form of diphtheria. Prof. Breneman, of Cornell University, investigated the matter and found the water supplied to a portion of the village to be of good quality, but that to the larger portion of the inhabitants was very impure, yielding a quantity of albuminoid ammonia and nitrates, with nine, twelve, fourteen, and as high as twenty-one grains of Chlorine to the gallon. He examined water from eighteen sources, and condemned thirteen of them. Although the epidemic was not confined to the localities supplied with the bad water, yet it prevailed

and was much more virulent there than in the parts provided with good water. Prof. Breneman observes, "It shows the extent of soil saturation and indicates the condition of the ground, the emanations and exhalations from which taint the air in which the families are obliged to live, and expose them to a constant morbid agency." Just so; not only is the water injuriously affected, but the air above the saturated soil is also tainted with the vapours emitted therefrom.

Then we read of the Crown Prince of the German Empire calling Prince Bismarck's attention to this subject, with a view of appointing a Royal Commission thereon. But, to come nearer home, a couple of years ago, Dr. Ellis made known the results of the analysis of water drawn from wells in every quarter of the City of Toronto. By the figures given it was distinctly shown that the waters examined held in solution a dangerous amount of chlorides, ammonia and organic substances. If then, it is an established fact that underground sources which formerly supplied fresh, pure, health-giving water, are now strongly impregnated with unwholesome matters derived from the accumulations of organic and inorganic refuse upon the surface of the ground, is it probable that rivers and bays in the vicinity of this refuse can remain for any considerable period, entirely or moderately free from a similar contamination? Certainly not. And much less likely is it that such rivers or bays can long continue pure when multitudes of city sewers directly convey their discharge into them. One would scarcely deem it needful to have such water

analysed in order to be convinced of its impurity. But should it be desired, the determination of injurious impurities in water, at all events for ordinary practical purposes, is a process so simple that the individual, if of average intelligence, with a few hours' study, may readily perform it for himself; and in this way he would avoid the necessity of being obliged to depend upon the decision of persons financially interested, or of importing outside experts to make the tests. It is freely admitted that there may be exaggeration in this as in other things. Perhaps impure water-supply is credited with more evils than rightly belong to it. Still, that foul water gives rise to many diseases, *e.g.*, typhoid fever, diphtheria, etc., both by its direct use and by inhalation of its gases, cannot be denied; and that it greatly encourages and intensifies diseases arising from other causes is equally undeniable. In dealing with this difficulty—the supply of water for cities—the civic authorities ought never to neglect the disinfection of all sewage before its discharge into a neighbouring body of water, especially if the latter be the source from which the "City water" is procured. For this purpose it may be passed into tanks and there completely disinfected before its entrance into the lake or other body of water. This is successfully practised in some parts of England (*e.g.*, Coventry), where the companies, termed Precipitation Associations, purify the sewage by means of sulphate of alumina, lime, proto-sulphate of iron, and other chemical agencies, forming precipitates to be afterwards used in fertilizing the soils.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

ONTARIO TEACHERS' ASSOCIATION. — The Annual Convention of this Association was held during the second week in August, in the rooms of the Education Department which were kindly placed at the disposal of the teachers by the Minister of Education. The first session was merely a formal opening of the proceedings, the only business done being the reading of the Treasurer's Report, which was satisfactory from the fact that it showed an increased balance on hand. The afternoon session was spent in receiving the reports of committees, and of delegates from local Associations. The report in favour of making the Association representative received a good deal of discussion, which brought out the fact that there was considerable difficulty in the way so far as the High School Masters and the Public School Inspectors are concerned; this, together with obstacles in the way of making the representation according to numbers, caused the question to be left over for another year. The report of the committee on the distribution of the Legislative and Municipal grants was, after some discussion, disposed of by a resolution re-affirming that the establishment of Township Boards is the only effective way to redress the grievances that are inevitable in the distribution of money grants under the present system of school sections which the country has outgrown. There is no doubt the Association is right on this question, and if its members, particularly the Inspectors, will only persist in keeping the advantages of the township system before the people of their districts, they will all the sooner bring about a reform that must eventually take place.

The evening of the first day was devoted to the President's address. It is to be re-

gretted, for Dr. McLellan's own sake, that the subject he at first intended to address the Association upon had to be set aside, from its similarity, as he declared, to that selected by Professor Young. The subject he did choose—Mathematics as an Instrument of Culture—is one that harmonizes with his own bent of mind, and, therefore, one that he may be supposed to have matured opinions upon; but he brought it before his audience with the warmth of an advocate, rather than with the deliberation of a judge. This provoked an invidious comparison between his effusion and the very able and philosophical address of Professor Young the succeeding evening. But Dr. McLellan's explanation of the circumstances attending its preparation should bespeak our charity, if not our sympathy. Besides, whether from habit or from temporary excitement, his delivery was very rapid, and parts that appeared to the most careful listener a mere "rhapsody of words" may, upon studious reading, be found to contain some evidences of thought. While we thus bespeak indulgent consideration for his address, we cannot go so far as to condone the vulgarisms that accompanied it. "How is that for high?" as an *aside* to the lecturer's friends, might do very well before a stump audience, but it was disrespectful, and shockingly out of place when uttered in the Normal School buildings before such an assembly as the President had around him, and in connection with what was intended to be a philosophical discourse. We should be sorry to take such a lack of good taste as the result of mathematical culture on Dr. McLellan himself.

Mr. McHenry, Head Master of the Cobourg Collegiate Institute, read a scholarly paper on the "Higher Education of Women,"

which, with the short discussion that followed, and the resolutions afterwards passed in connection with it, shows that the teaching profession is thoroughly alive to the importance of this subject, and is quite prepared to go to all reasonable lengths in advancing it.

The subject of Uniform Examinations for Promotion in our Public Schools was, in the absence of Dr. Kelly, Inspector of Brant, who was to have read a paper on it, brought before the Association in a neat address by Mr. Carson, one of the Inspectors of Middlesex; the chief outcome of the discussion upon it was the passage of a resolution declaring the fitness of the entrance examination to the High Schools as a means of promotion from the fourth to the fifth classes in the public schools. This is the extent to which the meeting was prepared to go in the way of uniform provincial examinations for promotion, a very decided opinion being expressed against uniformity for other classes being extended beyond each Inspectoral district—the bugbear, centralization, standing in the way of provincial uniformity. In the evening Professor Young read carefully prepared lecture on the “Order of the Development of the Faculties in Relation to Education” before a crowded and very appreciative audience. His opinions in the main run parallel with those of Bain, as enunciated in his book on “Education as a Science;” in several minor points he differs from him, however, as for instance in the age when ordinary school work should commence, the much less importance he attaches to the cultivation of the memory, and in his higher estimate of Kindergarten teaching. His opinion diverges widely from that of Dr. McLellan in regard to the value of mathematical studies, and he made a full tilt at his hobby, the “Unitary Method in Arithmetic,” upholding the value of proportion which it is intended to displace.

The Thursday afternoon session was devoted to a humorous paper by Mr. Brown, Inspector of Peterborough, on Physical Education in Schools; and to a paper read by Mr. Hughes, Inspector of Toronto, on the question—Is Compulsory Uniformity of Text-

Books desirable? His answer was that it is not. He argued that by throwing the supply of text-books open to competition, greater excellence would be secured in their preparation, and the cost would be diminished, amongst other ways, by binding up as much of the contents of a book, an arithmetic for instance, as a class has to study. Thus the public would be benefited, and, what he apparently forgot, though the tenor of his discourse indicated that it was present to his mind, the enterprising and pushing publisher would prosper.

The evening of Thursday was devoted to an address, eloquent and edifying in its character, by Dr. McVicar, of Montreal.

During each morning of the Convention the High School Masters, the Inspectors, and the Public School Teachers met in their respective rooms, and discussed matters pertaining to their sections. In these, perhaps, the most useful business is done, because it is business that intimately concerns the successful working of each part of our school machinery. The High School Programme of Study, Modifications of the Intermediate, Model School Work, Phonic Reading—these are the titles of some of the subjects laid down in the programme for Section work.

The meeting was, on the whole, a harmonious one,—the only decided difference of opinion appearing on the election of President. It has hitherto been customary for the Association to select some distinguished educationist outside of its own ranks to act as President. It was determined this year to choose one from the members of the Association itself, and the choice of the meeting, contrary to the recommendation of the nominating committee, fell upon Mr. R. Alexander, Principal of the Galt Model School. We think no better selection could have been made. Mr. Alexander, twenty years ago, was mainly instrumental in founding the Association; he has been a most useful member of it ever since, and has proved himself an excellent man of business in the conduct of its meetings; he is besides a man of good standing as a public school teacher in the country.

The Convention, which must be looked

back to by those who attended it as affording pleasure as well as profit, was brought to a close on Thursday evening by singing, according to time-honoured custom, the National Anthem.

THE EDUCATION SOCIETY OF EASTERN ONTARIO.—The Annual Convention of this Society was held at Ottawa, on the 30th July and following days, but owing to some evident oversight on the part of its officers, we have received no report of its proceedings. Perhaps we will be able to give this in our next issue; meantime we learn that papers were read by the following gentlemen, on subjects enumerated as under, several of which elicited considerable and interesting discussion. The readers and their subjects were: Mr. A. C. Osborne, of Napanee Model School, "On the Position of our Model Schools in our Educational System;" Professor Workman, of Ottawa, on "Music in the Schools;" Mr. W. J. Summerby, of Kingston Model School, on "The Influence of Teachers-in-Training on Model School Pupils;" and Mr. T. O. Steele, Inspector of Public Schools, of L'Orignal, on "Model Schools, and Model School Influence." Professor Young, of Toronto, at one of the Sessions, delivered his Lecture on "Psychology in its relation to Education." Papers, we understand, were to have been read by Mr. Inspector Glashan, and by Mr. W. R. Riddell. B.A., of the

Ottawa Normal School, but were postponed on account of the inability of the Convention to take up all the work before it. Mr. T. M. Slack, B.A., Inspector of Public Schools, Lanark, was elected to the Presidency of the Society for the ensuing year.

The Midsummer Conventions of a number of County Teachers' Associations have been held during the past two or three months, the proceedings at which, from want of space, we are unable in the present number to record. Of these we can only here briefly acknowledge receipt of "Reports of Proceedings" of such as we have been advised. These are:—

Lincoln Teachers' Association, held at St. Catharines, on the 6th and 7th June.

North Wellington Teachers' Association, held at Arthur, on the 29th and 30th May; with presentation to Mr. A. Dingwall For-dyce.

East Victoria Teachers' Association, held at Lindsay, on the 30th and 31st May.

Durham Teachers' Association, held at Port Hope, on the 16th and 17th May.

West Huron Teachers' Association, held at Goderich, on the 20th and 21st June.

Leeds Teachers' Institute (Division I.), held at Gananoque, on the 29th and 30th May.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

WHAT IS POSSIBLE AND IMPOSSIBLE IN SPELLING REFORM.

The recent Conference on Spelling Reform brought out several suggestions that were reasonable and useful, and some that were as wild as the most disordered dreams. Let us try and discriminate what is possible and desirable from what is neither. In the first place, it is clearly possible and desirable for a competent body of men—which should consist of linguists or lexicographers—to make recommendations as to the best of the two alternatives of spelling words which custom spells in one of several ways. A lists of words with two or more spellings, accompanied by advice as to which to prefer, and where it might be possible, the reason of such advice, would be a very important service rendered to the public,—though why it should be rendered by a Royal Commission, and not rather by a voluntary association of men, we cannot understand. A Royal Commission is not usually appointed without at least the intention of legislative or administrative reform. Nobody would think of appointing a Royal Commission to decide on the most economical sort of stove, or the best proportion between animal and vegetable food. What is wanted is, we suppose, that the mode of spelling authorized by the tribunal shall be subsequently enforced at all the Government primary schools, but then that might be just as well effected without a Royal Commission. The Inspectors of schools are really the final authorities in this matter, and they would follow, of course, the instructions laid down for them in the Department. All that is needed is that the Department should be guided by a reasonable amount of evidence as to the rule of spelling-orthodoxy they should prefer where various modes of spelling were in question, and we doubt exceedingly whether any Royal Commission nominated by the Government would do the work half as well

as a small Committee of lexicographers, appointed with reasonable judgment, and paid for their literary labours by a judicious publisher,—who would be well reimbursed in his turn by the large sale which a well-drawn-up report on the best mode of spelling words now habitually spelt in more than one way, would certainly secure from schools and teachers. The next suggestion which seems to us perfectly reasonable was that adopted by Sir Charles Reed, in his speech at Tuesday's evening meeting, that for the purpose of teaching children to spell, books should be used in which the unpronounced letters are printed differently, so that the child learns at once both that they are not sounded, and that they are to be found in the written language. For instance, in such words as "reign" and "deign," "resign," "assign," etc., the *g* would be printed in the peculiar type assigned to unpronounced letters. There may be many other suggestions as to the special books used for the teaching of spelling which would be equally useful, and equally mark at once the true pronunciation and the true mode of writing the word.

But what bewilders us in this Conference is, first, Sir Charles Reed's suggestion that "legislation" is to follow; and next Mr. Lowe's astounding proposal, insisting that fifteen new letters (a number reduced by a subsequent speaker to fourteen) should be somehow or other added to the English language, in order that every distinct sound might have a distinct letter to itself. As for Sir Charles Reed's suggestion, to what legislation does he point? Of course he means something beyond a mere Minute of the Education Department, or he would not speak of legislation. Does he want every newspaper which spells "honour" with or without a *u*,—it does not matter which,—after the authority appointed has decided for the opposite spelling, to be summoned before a Court of summary jurisdiction, and fined a shilling and costs? Or does he want to issue

a Spelling Code by authority of Parliament, and make all statutes invalid whose spelling deviates from it, so far as those provisions are concerned which contain words wrongly spelt? Of course Sir Charles Reed means nothing of that nonsensical kind, but what in the world does he mean by the "legislation" which is to follow? Still more surprising is Mr. Lowe's proposal to launch fifteen new letters on the English public, and interpolate them, we suppose,—nothing less can be meant, for nothing less would be of any use,—in all documents issued by the authority of the Government. Just imagine Members of Parliament conning their Blue-books with not only the Anglo-Saxon letter for "th" interspersed wherever that sound occurs, but fourteen other similar hieroglyphics staring them in the face whenever they come to the study of their favourite political hobby. It might be said that, of course, the new notation would only be introduced slowly, as the rising generation learned to understand it; but the truth is, that a people which has arrived at the mature stage of literary civilisation attained by Great Britain cannot suddenly change its language, either written or spoken, and interpose such a chasm as this between the literature of the past and the literature of the future. Indeed, even if the attempt were made,—which it never will be,—the only result would be that children, to be of any use, would have to learn two written languages instead of one,—one language to understand their own age, and another to understand all that had been written before the Right Hon. Robert Lowe carried his amazing plan for revolutionising the written language of Great Britain. It seems to us that these enthusiastic and fanatic spelling-reformers are so eager to help small children, that they imagine they can change the face of a great society by a mere decree. Nor even, if they could have their way, and society were really to obey them, to drop all these silent *b's* and *g's*, and make an end of all anomalies, to get in all the *dets* (as "*debts*" is to be spelt in future) which custom owes to reason, and so change the written and printed language at a stroke that the literature of the latter half of the Victorian period would differ from that of the first almost as much as the

written language of the Elizabethan age differed from that of the time of Chaucer,—not even so would the children have received the great benefit imagined. No enthusiasm, unfortunately, can transform the spelling of the millions of books already in existence, and the chief use of education in spelling is to enable people to read easily and correctly whatever it may be their duty to read in their discharge of ordinary functions. Yet how would children brought up on the patent system of reformed spelling stumble and blunder over the old spellings with which they would always be coming in contact! The silent *b's* and *g's*, the anomalous diphthongs that ought to be obsolete and yet declined to disappear, the 'throughs' and 'boughs' and 'coughs' which would always be running into them, or tripping them up, or obliging them to clear their throats, would soon compel any of them who were worth their salt to learn the whole lesson over again, so as to render the language of their fathers as familiar to them as their own. And so all that the reformers would have done would have been to make a great gap in the history of our literature, without having served anybody, except the few who would never use any system of spelling correctly, and might much better be allowed to spell badly in the few letters and bills it would be their duty to write, than have all this dust blown in the eyes of those who really know what the genius of a language is. But in truth, the whole thing is a mere dream. Where our modern spelling is doubtful, we may just as well be advised which spelling to prefer. But where it is fixed in the literature of the last century, you can no more alter it to please a few pedants and help a multitude of puzzled children, than you can get rid by a fiat of the trailing plants of a South-American forest, in order to make the way easier to explorers who don't like the fatigue of cutting through them. It is a wise and sagacious proposal to teach spelling by any method which at once instructs the child which letters are to receive their natural sound, and which are to be silent or sounded in some conventional manner. But the ordinary literature of our day cannot be riven in two, even to make it easier for children to learn to read.—*London Spectator* (June 2, 1877).

CONTEMPORARY LITERATURE.

EDUCATION AS A SCIENCE. By Alex. Bain, LL.D. (Volume 25, International Science Series.) London: C. Kegan Paul & Co.; Toronto: James Campbell & Son; also, New York: D. Appleton & Co.; Toronto: Hart & Rawlinson and A. Piddington. (*Second Notice.*)

Perhaps, to the practical teacher, the most important chapter in this work is that on Methods. It will afford him much food for thought, and if this leads to self-examination, many instructive lessons will be derived from it. Our author thus introduces the subject:

"The Teaching method is arrived at in various ways. One principal mode is experience of the work; this is the inductive or practical source. Another mode is deduction from the laws of the human mind; this is the deductive or theoretical source. The third and best mode is to combine the two; to rectify empirical teaching by principles, and to qualify deductions from principles by practical experience."

He lays down the correct method of teaching the manual accomplishments of Drawing and Writing. First let children, as in the kindergarten, learn to mould objects from plastic material, then to cut figures out of paper; this leads to the making of regular figures in drawing, and finally the formation of the irregular characters of writing easily follows. The writing should be a plain, passable hand as "It is not the school-master's business to carry writing to the pitch of a work of art." p. 237. Mr. Bain further says, and we quite agree with him, that as perfection in any one aptitude should not be aimed at in the beginning of education, the drawing of symmetrical forms and designing should be kept in strict subordination to the general aims of education until the scholar has advanced far enough to gratify, with

safety, any special bent he may show as an artist, a designer, or a skilled musician. We cannot agree with our author, however, in excluding all notions of perspective from the pupil's curriculum, for the power of representing solid objects is one that is in frequent requisition in the daily walks of life. He views with indifference what is called in this country the phonic method of teaching reading, remarking that "after a few preliminary steps the old and new methods come to the same thing." This opinion is not fortified by any argument, and is consequently of little weight beyond what Mr. Bain's authority may give it. The new method has not been long enough in use to test its merits by results, but it must be confessed that the arguments in its favour are cogent. He has little faith in any short method of teaching spelling, believing rightly that good spelling results from careful reading, writing to dictation, extensive practice in writing under correction, and he might have added careful transcription of the work of any good author.

He would have the first lessons in reading taught principally for the sake of the words and with little or no regard to the meaning, believing that scarcely any composition excels both in teaching language, and in teaching knowledge. But why should not the principle that Mr. Bain so frequently insists upon, that separate subjects should have separate lessons, be recognized here; by making a reading lesson first a "language lesson," and subsequently a "knowledge lesson?" Above twenty pages are next devoted to an investigation of Object Lessons. He warns the professional reader against wasting time upon things children already know, and insists upon proceeding carefully in these lessons from the Known to the Un-

known, seeing that it is the essence of the object lesson to be empirical. To economise time, he strongly urges pre-arranging a set of lessons having a definite purpose, each being limited in scope, and a unit in itself, and the whole arranged in consecutive order. He clearly states the aim of these lessons to be "to guide, rectify, direct, and forward reasoning and observation," as well as to increase knowledge.

A careful selection of object lessons leads up to the study of Geography, which should be begun with a series of lessons of that character. Persistent care is urged in limiting the scope of each lesson so as not to confuse the minds of young pupils. "Separate the fact from the reason," urges our author, "and describe the fact first that it may be understood, and imbibed as such," before the reason that is based upon it is brought forward. Hence he advises caution in mixing up physical with descriptive Geography, believing that the former should succeed the latter.

He takes a very narrow view of History when he says, "In the lives of kings, statesmen, generals, and other great men we have the materials of history."—p. 281. History is the life of a nation, and we need more than the materials here enumerated to teach Sociology and the Science of Government, which are the phases of that life that render the subject of much value as a branch of education. He sets little value on it as a part of a school course, apparently because its bearings cannot be understood without much previous knowledge and some experience of the world. He thus justifies his position:—"The fact that history presents no difficulty to minds of ordinary education and experience, and is, moreover, an interesting form of literature, is a sufficient reason for not spending much time upon it in the curriculum of school or college. When there is any doubt we may settle the matter by leaving it out."

There is little to be learnt from the remarks on teaching Arithmetic, as our method is far in advance of anything Mr. Bain has to teach. We quite agree with him that questions should be utilized to convey useful information about the facts of nature or the conven-

tional usages of life, so that these might be incidentally implanted on the memory while the mind was engaged upon the question; but who is to decide what is useful information? We fear the Arithmetician is not the best judge. We well remember good Dr. Thomson's efforts in this direction, in giving in his book the distance of Georgium Sidus from the sun in one question, and the length of yarn Catherine Woods of Dunmore, thirteen years of age, spun in a certain time, in another; both pieces of information which only respect to Dr. Thomson's memory would lead us to characterize as useful. Professor Bain himself would be no safe guide, for on page 293 we find the following statement of the kind of useful information he would convey in this manner:—"Important geographical numbers could be stamped on the recollection by being manipulated in a variety of questions. The dimensions, area, and population of the three kingdoms, the proportion of cultivated and uncultivated land, the population of the largest cities, the productions, trade, taxation of the country,—all of which become the subject of reference and the groundwork of reasoning in politics,—could receive an increased hold on the mind by their iteration in the arithmetical sums." In fact our author would make each scholar a young statistician, and would cram him with a host of figures that would never be of any avail to himself, or any one else for purposes of either information or reasoning.

When we reach the pages devoted to oral teaching and text books, we tread on safer ground. Indeed, these are so good that we wish we could, for the benefit of our readers, transfer them entire. The necessity of a text book in some subjects is very properly recognized, but only as an auxiliary to oral teaching. Lecturing has the great advantage of the living voice in securing attention where a text book would fail. It is wisely suggested that when a lesson, which has been prescribed from the book, is found ill-prepared, it should be given again with the benefit of the intelligent catechising by the teacher to help in preparing it afresh. This assistance of the teacher's judgment and

voice is repeatedly insisted on. At page 306, for instance, he says: "A task may be of a kind to dispense with preliminary explanation, as in learning a string of words, or a verbatim statement. Even then it is well that the teacher should first recite it to the pupils; his doing so once will go further to fix it in the memory than their going over it by themselves six times. There is no harm, but good, in exacting a certain amount of independent preparation, especially with older pupils, but the teacher's first recitation, and the final iteration during the lessons, are the principal instrumentality whereby the lesson is fixed in the memory; the learner's own studies are the smallest contribution to the effect." Explanation is particularly necessary on lessons where the substance only is to be given, inasmuch as it cannot be expected that even the majority of scholars, with their immature judgments, will agree with the teacher as to what is important and what is worthless. Mr. Bain thus speaks of lessons of inordinate length:—"It is bad policy to prescribe lessons of excessive length, expecting only a part to be performed. If, for the sake of the better pupils, the lesson should exceed what the average can perform, the minimum should be a defined portion, to be exacted of everyone. The impossibility (to the teacher) of bringing every pupil in a class to book, on every occasion, is in itself a standing temptation (to them) to run the blockade; but when the quantity prescribed is beyond what can be reasonably required, the do-nothing habit receives positive encouragement."—p. 307.

We had hoped to have seen a positive utterance in this book on the vexed subject of examinations as a means of testing acquired knowledge, but this Mr. Bain cautiously shrinks from, being content to refer the reader to the work of another author upon the subject: we seek for bread and he gives us a stone. Surely the best method of testing the acquisition of knowledge should be clearly indicated in a work such as the one before us; and the merits and defects of examinations to this end deserve a careful investigation in

view of the fact that their efficacy has been questioned by persons whose opinions are eminently entitled to respect.

There are but few intelligent teachers who do not question the value of a good deal they are expected to impart, basing their estimate upon the future use that may be made of each subject in the curriculum. Professor Bain, applying this test, says:—"Such a criterion would attest the high value of the Experimental Sciences, such as Physics and Chemistry, the smaller but yet considerable value of Mineralogy and Botany, and the very small value of many things much more prominent in our education than any of these."—p. 322.

He has nothing very new to say of the method of teaching languages, he recommends, however, as in other subjects, that the teacher should assist and guide the labours of the scholars by a short prelection on each lesson prescribed. He points out clearly the difficulties of learning a foreign language out of the country in which it is spoken, and in the absence of the things the words stand for, and refers to the various expedients to decrease them, such as arranging the words to be learned into verses, making alphabetical lists of them, placing those together to commit to memory that are related in meaning, and copying out case, and conjugation forms, &c.

In dealing with the mother tongue, Mr. Bain has a good deal that is useful to say. He shows that owing to the close relation of names to the things they represent, language lessons at first should be really a series of object lessons. "The best form of introducing a fact to a child would be its real occurrence.

But listening to talk and book-reading bring forward things without any reference to their actual presentation, and then some way of introducing them has to be found, the task in many instances being premature and impossible," without the presence of the things themselves. He points out that the teaching of correct grammatical utterance may precede the formal introduction of grammar, which he thinks should not take place before the child is ten years of age. We are in entire accord with him in this and also in the con-

viction as to the lasting benefit to be derived by young scholars from committing passages to memory, more especially of poetry. Though this is a recognised portion of the regular school work of all grades of schools in Britain, it has been but partially introduced in Ontario. It is but a few years since the Central Committee, after repeated representations, introduced anything worthy of the name of English Literature into the examination of public school teachers. Now we have got so far as to have the study of English classics form a part of the regular High School course, and we are not without hope that as fresh light breaks in upon that body from the minds of the more active members of the profession they will awake to the desirability of recommending an allotted portion of English Literature in some shape to the pupils of our Public Schools. Perhaps it may help them more speedily to an opinion if we quote what Professor Bain says:—"Committing passages to memory, having the great merit of being plain and manageable, is adapted to the lowest teaching capacity, and nobody can say that it is devoid of useful results. It certainly stamps upon the mind the material both of thought and of language, and they must be very hopeless subjects who cannot turn it to some account. . . . Poetry has a natural preference in this exercise. The impressiveness of the measure, and the elevation of the style, the awakening of emotion, favour its hold on the memory. Now a store of remembered poetry is a treasure in itself; its first effect is emotional, and its secondary uses are intellectual; it contains thoughts, images, and language of more or less worth, and such as are capable of taking part in our future intellectual constructions. Impassioned and rhythmical prose holds the next place; if it be inferior in form to poetry, it is yet more likely to be available in our own compositions. . . . If poetry is to be made a task it should be at an early age, when the despotic measures of the school are less taken to heart, and easily effaced. From seven to ten, the mind is in every respect more pliable to this particular work, than from ten to fifteen."—pp. 331-2. "At the age of critical understand-

ing, the committing of pieces at length should give place to the impressing of selected exemplars, in the shape of short sentences or short series of sentences made alive by critical exegesis, or the singling out of merits and defects."—p. 334.

Our author approves of and recommends extensive preliminary exercises in composition, somewhat similar, we should say, to those given in Swinton's "New Language Lessons," before beginning what he calls "the greatly vexed matter of grammar teaching." The uses he claims for Grammar are: 1. The avoidance of the grosser forms of grammatical impropriety. 2. The isolation of the pupil's attention upon the language itself as such. 3. Its aid to readiness, ease, correctness, and effectiveness of composition, since the scholar is led to examine the structure, arrangement, and constituents of the sentence by syntactical parsing, and the analysis of sentences. 4. Its advantage in the departments of Derivation and Inflection, in adding to the pupil's wealth in the vocables of the language. In this enumeration it will be observed, he does not make the slightest recognition of any benefit to the mind from the intellectual exercise involved in the study. He has no word of encouragement for those who would teach Grammar without a text book, and he supports his opinion by cogent arguments which he thus concludes:—"The grammar teacher working without books, either tacitly uses some actual grammar, or else works upon a crude, untested, irresponsible grammar of his own shaping."—p. 345. He gives but faint praise to the tracing of words to their ancient originals, observing that: "present meaning and use are the only guidance to the employment of the language; the reference to archaic forms may sometimes account for a usage but can never control it." In regard to the formal teaching of Composition, he does not approve of Theme writing for young pupils, remarking with much truth, "the finding of matter requires more than one-half of the student's attention, which is diverted from what is of far more importance—the style." He considers the

critical examination of good prose and verse passages, accompanied by a course of rhetorical instruction, as the best composition exercise.

The tenth chapter is devoted to an estimate of the Value of the Classics, and we may at once say Professor Bain uses all the force of his logic to show that they have no value at all as a mental exercise? The high estimate put upon them by eminent men of past ages and many of the present time; the treasures of thought and perfect diction they contain; the information they convey; the mental training that is claimed to result from their study; the accurate acquaintance with many words in our own language which a knowledge of them furnishes, have in his estimation little weight in counterbalancing the cost in time and strength which their study involves; the hindrance to the mental progress of the learner by the mixture of the conflicting efforts of mastering the words of a language while grasping at the meaning; the lack of interest which accompanies the study; and finally the slavishness to authority in matters of opinion brought about by long-continued study of them, as, for example, in the case of Aristotle.

It will not surprise our readers that Mr. Bain thinks a radical change should be made in our course of education, which, in a later chapter of the work before us, he proposes in the following "Renovated Curriculum of a High Education:"

1. Science, including the Mathematical, Physical and Natural History Sciences, and Geography.

2. The Humanities, including History, Political Economy, Jurisprudence, and General Literature.

3. English Composition and Literature.

Perhaps the chief merit of this scheme is that it could be made to apply to all grades of education, so that the training in our public schools would be as much entitled to be called a liberal education as that given in our universities, the two differing only in degree. We are glad to say the tendency of our own educational system is in this direc-

tion, and the more it is fostered the more will our public schools, high schools, and universities become successive steps to a complete education.

We have far exceeded the limits we had set for ourselves in reviewing this important work, but as it is an earnest attempt to put education on a scientific basis it deserves all the attention we have given to it. Our readers will have seen ere this that though it is not by any means all that a work treating on the Science of Education should be, we think it worthy of a careful and studious perusal, and as such should be found in the hands of every thoughtful, progressive teacher.

LECTURES ON THE HISTORY OF ENGLAND.

By M. J. Guest. London and New York: Macmillan & Co. Toronto: Willing & Williamson.

Our first thought on taking up this work was—What need is there for anyone to go over the same ground that has been so well trodden by Mr. Green in his two admirable works on English History? We had not scanned many pages, however, before we found that the book supplies a positive want. Who has not felt the need of a thoroughly reliable and readable book on English History to put into the hands of an intelligent boy or girl? Dickens's book, besides being too childish, is not reliable, and is too much in the novelist's style as a caricaturist; and the ordinary school history partakes too much of the character of a chronology to be of much use as a history. The present work, which is a book of nearly six hundred pages, has none of these defects. The author assures us the Lectures are genuine—"given week by week to a class of students in the College for Men and Women in Queen's Square." They bear internal evidence that no labour was spared in their preparation, and they make up a somewhat gossipy but thoroughly reliable book, written in a simple sober style, with a great deal of discrimination and judgment, and altogether well fitted for the purpose that we indicate. Take the following description of Alfred for example—"I do not believe there was ever a more truly religious man in the world than

Alfred; but he knew when he could serve God better by working than by praying. And this he kept in view all through his life. He loved prayer and reading the Bible as well as any saint, but he loved work and toil for his people too. His life and his mind were what we call well-balanced. And, still more he had one of those large wide sympathetic minds which can be keen and interested in many different ways, and on many different subjects. When there was fighting to be done, he showed himself a brave soldier and a clever commander; but when there was no fighting, he was equally ready as a law-giver, as a governor, and as a judge. He was like Bede in loving learning, and teaching. He loved music, poetry, and books; hunting, hawking, and building. He loved clever men and their company; he loved his family."—(p. 73).

Who will not recognize most of the characteristics we ascribe to the author in the following sketch of the Stuarts on page 463?—

"He (James I.) and all the Stuarts had as much love of arbitrary government as the Tudors, but they had not what the Tudors had, the gift of seeing and understanding when they might have their own way, and when they must yield. When the masterful Elizabeth saw that her will clashed with the will of the nation, she could be wise, and give in; but the Stuarts never did or could see that. It was in their time that the great struggle came, and once and for ever it was shown to all kings and to all people, that England was a free country, whose kings must rule according to the laws, and the will of the people, or they should not rule at all. It was a hard struggle, and cost one of the Stuarts his life and another his throne, but it was fought to the end, and will never have to be fought again."

A great deal of attention is given to the social condition of the people as well as to political institutions, and the author's wholesome opinions will prove a safe guide to the young reader in regard to those events which render history an important factor in modern education. We have never seen a better statement than this book contains of the benefits resulting to the English character from the

infusion of the Norman Element (p. 141), nor any that brings more clearly before us the causes that led to the signing of the Great Charter (pp. 207-9), and the establishment of Representative Government (pp. 228-31). The author is a little disposed to hero worship, and while showing a wholesome appreciation of the sterling qualities of our English Worthies; is very indulgent, if not altogether blind, to their faults. The heroic qualities of the first Edward, for instance, are extolled, but his relentless severity towards the Welsh is mentioned without a word of condemnation; and the only comment that is made on Bruce's sacrilegious murder of the Red Comyn is—that it was a terrible beginning to his exploits in his native land. The most serious fault of the work is the excessive space that is devoted to the earlier periods, only one third of the book being occupied with the Tudor, Stuart, and Brunswick dynasties. Hence we find several important omissions. We are told, for instance, that two thousand clergymen were turned out of their livings in the reign of Charles II., but we are not told that this was owing to their refusal to obey the Act of Uniformity.

No mention is made of the Bill of Rights or of the Act of Settlement, and there is but a meagre reference to the first Reform Bill. The author needs make no apology, as she does in her preface, for her quotations; they are so judiciously made that they form one of the greatest charms of the work. We hold that the true plan has been followed to let each age, as far as convenient, tell its own story. The sources drawn from are numerous—not the least fertile being Sir Roger de Coverley's great authority, Sir Richard Baker,—and no one can read the extracts from Fuller without a wish to read that quaint but sprightly author for himself.

We took the book up with a prejudice against it; we lay it down with a hearty commendation. Instead of supplanting other and greater works, it will serve as a handmaid to them, and in the hands of an intelligent boy or girl, it will accomplish as much as Green's History in those of a person of matured and cultivated intellect.

A MANUAL OF ETYMOLOGY; containing Latin and Greek Derivatives. * By A. C. Webb. Philadelphia: Eldredge & Bro., 1879.

In its mechanical preparation this work seems to be all that could be desired, and if a book of Greek and Latin derivatives could be called a "Manual of Etymology," we would perhaps have comparatively little to complain of. Of course there would still remain the fact that the quotations, illustrating the use of the words, are almost exclusively taken from American authors, and not always from the masters of expression in the language; moreover, we may presumably be pardoned for objecting to a running fire of sentences which illustrate quite as fully the hostility of a certain section of the American people towards Britain, as they do the just employment of words. Nor are the examples selected always models of propriety. In the work before us the historical development of the English language is ignored altogether. All we have even of the Anglo-Saxon element is a short, inaccurate list of Anglo-Saxon pre-

fixes, and a few suffixes introduced among the Latin ones, no hint being given as to which are Latin and which Anglo-Saxon. The "Manual" was "entered according to Act of Congress" in the year 1879, and yet *publish* and *finish* are considered to have the same suffix as *blackish* and *boyish*. The book has some good features; in the classical words the stress is indicated by an accent or with marks of quantity, an advantage for those who know but little of the Classics; the idea, too, of giving examples of the employment of words is good, though we may have our own opinion of the quotations themselves. The work would be useful in supplying lists of words derived from Latin and Greek, but it must be used with caution, and verified in every doubtful case. Like so many others, the book betrays an almost total lack of special preparation for the work, which an Etymologist requires. A good knowledge of the Classical languages, and a superficial study of Anglo-Saxon, will not suffice to illustrate the niceties of words or to explain their origin.

EDITORIAL NOTES.

TOPICS OF THE TIME.

It is with pleasure that we announce that the call we made in this department in our last number, on behalf of *THE MONTHLY*, to secure for the publication increased aid and support, has met with a very gratifying response. Taking advantage of the Convention of the Teacher's Association of the Province, held a few weeks ago in Toronto, a number of friends of the Magazine took in hand the project, not only for extending its circulation, but of forming a Joint-Stock Company (Limited), with the view of placing *THE MONTHLY* upon a sound financial footing, and of securing the prosecution of the enterprise. This scheme met with the hearty and substantial support of many influential members of the profession present at the Convention, while others, absent from the gathering, have, since learning of the project, signified their willingness to take shares in the Company. This action is exceedingly encouraging to the promoters of the undertaking, and will no doubt be gratifying to many in the profession who, looking with favour upon the work *THE MONTHLY* was accomplishing, desired its permanent and satisfactory establishment. These practical evidences of sympathy and favour in the *MONTHLY*'s behalf, will now enable its originators to carry on the publication with vigour and with heart, while the extended range of proprietorship will assure it such further literary and professional assistance as should greatly increase its claims upon general support.

THE University of Toronto will part with regret with two distinguished members of the faculty, the President of the College, Dr. McCaul, and the occupant of the Chair of Chemistry, Prof. Croft. Both gentlemen

have been long connected with University College, have signally contributed to its renown, and now well earn what we hope will be a lengthened season of honoured repose. In many respects their superannuation is to be regretted, for it deprives the University, on which their rich scholarship and ripe experience shed so much lustre, of services it will be difficult to replace. Their retirement leaves vacant the Presidency and the Chairs of Classical Literature and Chemistry. To fill the first of these vacancies a name readily suggests itself—that of Dr. Wilson—whose claims to the Presidency should be favourably considered by the Government. The names of many graduates of the Institution also suggest themselves to supply the Professorial Chairs. But in appointments so important as those to be made, no considerations should weigh with the appointing power but those of pre-eminent fitness, whatever the quarter in which it may be found. At present a great deal is being said of the qualifications of Canadian aspirants to the Chairs, and the spirit of nationalism is invoked to advance their interests. True patriotism, however, will, in this case, subordinate sentiment to duty, and will seek the men we want whatever their nation. At any time the responsibility would be great of filling the vacancies that have occurred; at the present, no appointments call for the exercise of graver deliberation. We trust that Mr. Crooks and his Government may, in the interest of the University, be fortunate in the men on whom their choice will fall.

BRIEFS ON NEW BOOKS.

Manuals for Teachers: No. 1. The Cultivation of the Senses. Philadelphia: Eldredge & Bro. This is an American reprint of the first of a series of "Manuals on the Science

and Art of Teaching," published in England under the auspices of the National Educational Society. In the first five chapters, the titles of which, after the introduction, are: "The Senses," "How the Child gets his First Ideas," "How the Child Perceives," "How the Child forms Conceptions," we have a well-considered effort to place the education of the senses on a psychological basis. So far as these go into the matter, they are valuable to the young teacher; for the author certainly affords in them a very good exemplification of a remark of his own, that "Our language is precise as our conceptions are distinct." The remaining chapters, which are devoted to the practical work of training the senses, are, however, the most valuable. They contain the suggestions of a man of highly cultivated intellect and of acute observation, who, to use his own words, "looks till he sees." In the sixth chapter he speaks of his subject thus:—"In cultivating the senses, our aim should be not so much to bring them to their highest possible acuteness, as to fit them for the duties of life, as efficient and ready instruments of the mind." Take the following as evidence of the sound sense this little book contains; it is upon Object Lessons: "As far as possible, even in the primary school, lessons relating to connected and kindred subjects should be given in a series, so that the relations between things may be perceived, and in order that new knowledge may be linked on to the old." It surely must be in Utopia, however, that our author expects "actual weighing, measuring, and exchanging," to be practised in teaching the arithmetical tables, and not even Utopia could expect the time of either teachers or children to be wasted in making "clay models of battle-fields, sieges, etc.," to illustrate a history lesson. The book is very well got up in typography, paper and binding.

LITERARY AND SCIENTIFIC JOTTINGS.

THE first volume on "The Data of Ethics," of Mr. Herbert Spencer's new work, on the

"Principles of Morality," has just been published. The author's purpose, we learn, is to ascertain and describe the objective qualities of right conduct, the external signs of the highest virtue, and to show their coincidence with the results of progressive evolution.

THE Messrs. Blackie have added to their comprehensive School Series a volume entitled, "The Newspaper Reader," comprising selections from the journals of the present century, on events of the day. The compilation is chronologically arranged, and while furnishing interesting extracts for class reading, it capitally epitomises the leading events in modern history.

THOSE practically interested in the question of the higher education of women should make the acquaintance of a handbook of middle-class female education in England, which has recently appeared from the pen of a Mr. C. E. Pascoe. The book is entitled "Schools for Girls and Colleges for Women."

A LITTLE volume entitled, "Easy Lessons in Natural Philosophy for Young Children," has just been sent us by Messrs. Eldredge & Bro., Educational Publishers, of Philadelphia. Its contents appear in the form of Question and Answer, after the style of the "Reason Why" series.

FROM Messrs. Willing & Williamson, Toronto, we are in receipt of Book VI. of Chambers's National Readers, comprising an excellent collection, in attractive form, of extracts from British representative authors in chronological order from Beowulf to the present day.

MESSRS. DAWSON BROS., Montreal, send us "A Complete Arithmetic, oral and written, designed for the use of Common and High Schools and Collegiate Institutes," by the Rev. D. H. MacVicar, LL.D., Principal, Presbyterian College, Montreal. The volume, typographically, is an excellent specimen of book-making; and to those in search of a text-book in Arithmetic, on the science-made-easy principle, the work will be found exceedingly rich in matter.

EDUCATIONAL INTELLIGENCE.

THE Hon. the Minister of Education has returned from Europe.

DR. HODGINS, the Deputy Minister, has been holding an Educational Convention in Parry Sound, and conferring with those interested in school matters in the Muskoka and Parry Sound districts.

THE Education Department, it is said, is preparing a new and enlarged map of the Dominion, of the dimensions of nine feet by five. This is much wanted by the schools, and it would be a boon to the public, while contributing to the cause of popular education, if the map could be had by anyone who desired to possess a copy.

WE notice with regret that a resolution has been passed by the Toronto School Board urging the Minister of Education to shorten the summer vacation by two weeks. We hope that Mr. Crooks will not agree to any such change, as the summer holidays are quite brief enough.

THE Matriculation Examination in Medicine for the College of Physicians and Surgeons, Ontario, was held in Ontario Hall, Kingston, on Tuesday and Wednesday, the 19th and 20th August. Only fifty candidates presented themselves, very few of them being of those who failed in April last at the examination which was held at Toronto. The explanation probably is to be found in the important changes made by the Council of the College last year, which took effect at this examination for the first time. These changes are (1) that no part of the matriculation fee (\$10) is to be returned to any candidate who may have the ill-luck to fail; and (2) that any candidate who fails in one of the branches of examination is regarded as having failed in the whole, *i.e.*, he has to be re-examined in all of the branches. We understand that the practice which obtained hitherto, was to give credit to any candidate for every subject in which he passed. There is no doubt that the tendency of this mode of conducting the examination will be to secure a better class of candidates and to prevent those from presenting themselves for

examination until well prepared for it. The examiners were Archibald MacMurchy, M.A., and Archibald P. Knight, M.A., Rectors of the Collegiate Institutes at Toronto and Kingston.

THE MERCANTILE GRADED COPY-BOOKS.

To the Editor, Canada Educational Monthly.

SIR,—We have to thank you for your appreciative notice of our series of "Mercantile Graded Copy-Books" in the last number of your Monthly, and to say that the defects you pointed out have been remedied in a new edition now in press. Slight as those defects comparatively were, we set about removing them when indicated, and we will make any other improvements which may be needed to maintain our series of Copy-Books in the position of being the very best in the market. Yours obediently,

COPP, CLARK & CO.

Toronto, 28th August, 1879.

[The above note, received from the publishers of the "Mercantile Graded Copy Books," is gratifying to us as an indication that the critical department of THE MONTHLY is helpful to the trade, and, with the Publishers' own enterprise, is instrumental in effecting improvements in the productions designed for school use, which cannot be too carefully nor too intelligently prepared in aiding the great work of education. Since the publication of our *critique* on the Copy-Books, Mr. Clare has added two new issues, Nos. X. and XI., to the series, which greatly increase its value and give it further variety. No. X. contains specimens of a free but neat angular hand for young ladies who prefer this style to that given in No. IX. No. XI. presents a variety of elegantly-written notes, formal invitations, etc., made to run down the side of each page—as in actual correspondence—and not along the top, after the fashion of a head-line. The examples in this style make the number a very attractive and useful one, and it therefore promises to be in good demand. If the head-line in No. X., "Fame commonly accompanies merit," be a trustworthy maxim, Mr. Clare and the publishers stand a good chance of celebrity through their excellent series.]

UNIVERSITY OF TORONTO.

We publish as under the results of the June Matriculation Examinations in connection with the University of Toronto. As will be seen from the lists, one hundred and thirty-one candidates passed the Examination. The SCHOLARSHIPS were awarded as follows :

Classics.—Alex. Crichton, St. Catharines Collegiate Institute.

Mathematics.—George Ross, Hamilton Collegiate Institute ; John McKay, St. Catharines Collegiate Institute, 4 months ; Brantford Collegiate Institute, 9 months.

General Proficiency.—1. H. H. Langton, Upper Canada College ; 2. E. W. Hagarty, Toronto Collegiate Institute ; 3. J. C. Robertson, Goderich High School ; 4. H. Bois, St. Mary's High School.

Modern Languages.—Alice Cummings, Hamilton Collegiate Institute.

Alexander Crichton stood first in general proficiency, but was not entitled to hold a scholarship, having gained one in classics. John Squair (from Bowmanville High School) was ranked third in general proficiency, but could not take the scholarship because he is over the age prescribed by the statute—23.

A number of young ladies passed in different groups at the local examinations in Brantford, Port Burwell, and Toronto.

HONOUR LIST.—ARTS.

Classics.—Class I.—1. Crichton, A. ; 2. Fairclough, H. B. ; 3. Mayberry, C. ; 4. Squair, J. ; Hudson, A. B., Langton, H. H. ; 7. Hagarty, E. W. ; 8. Fotheringham, J. T. ; 9. Robertson, J. C.

Class II.—1. Wilgress, G. S. ; 2. Trull, F. W. ; 3. Bonis, H. ; 4. Kerr, R. ; 5. Lawson, A. ; 6. Ormiston, W. S. ; 7. Campbell, J. (St. Catharines) ; 8. Scott, W. ; 9. Osler, H. S. ; 10. Cameron, A. B. ; 11. Dewart, H. H. ; 12. Goodwillie, A. W.

Latin Only.—Class I.—Cummings, A.

Mathematics.—Class I.—1. Ross, G. ; McKay, J. ; 3. Donald, R. C. ; 4. McKay, A. C. ; 5. Philip, J. H. ; 6. Riddell, G. J. ; 7. Weir, A. ; 8. Cochrane, R. R., Kerr, R. ; 10. Boulton, F. ; 11. Middleton, W. E. ; 12. Campbell, T. G., Cook, J. W. ; 14. Charles, H. ; 15. Crichton, A. ; 16. Hunt, E. L. ; 17. Scott, W. ; 18. Hagarty, E. W., Little, J. G. ; 20. Farquharson, W. ; 21. Lawson, A. ; 22. Robertson, J. C. ; 23. Cody, W. S. ; 24. Bonis, H. ; 25. Wedin, A. ; 26. Grant, D. M., King, F. J. ; 28. Squair, J. ; 29. Langton, H. H. ; 30. Phair, E. ; 31. Dewart, H. H. ; 32. Playter, J. E. ; 33. Maughan, M.

Class II.—1. Montgomery, W. ; 2. Johnson, T., McCalman, D. H. ; 4. Woodhull, F. ; 5. Robertson, J. S. ; 6. Ormiston, W. S., Shaw, J. ; 8. Duggan, J. M. ; 9. Mayberry, C. ; 10. Balmer, R. ; 11. Potter, C. ; 12. Smith, C. J. ; 13. Richardson, J. A. ; 14. Campbell, John (Uxbridge).

English.—Class I.—1. Dewart, H. H., Fitzgerald, L., Lawson, A. ; 4. Wedin, A. ; 5. Langton, H. H. ; 6. Cummings, A., Weir, A. ; 8. Fairclough, H. R., Henderson, M. E., Phair, E., Simon, E. H. ; 12. Attwood, E., Campbell, J. (Uxbridge), Crichton, A., Hume, J. G. ; 16. Campbell, J. (St. Catharines), Middleton, W. E., McKay, J., Palmer, J. F. ; 20. Cook, J. W., King, F. J., Mayberry, C., Riddell, G. J., Ross, G. ; 25. Bonis, H. ; Cameron, A. B., Fotheringham, J. T., Gross, A. H., Hudson, A. B., Playter, J. E., Robertson, J. H., Squair, J. ; 33. Balmer, R., Charles, H., Robertson, J. C., Tibb, R. C.

Class II.—1. Lee, L., Ormiston, W. S., Read, J. W., Wilgress, G. S. ; 5. Grant, D. M. ; 6. Luke, M. E. ; 7. Creasor, A. D., Farquharson, W. ; 9. Hagarty, E. W., Hunt, E. L., Raiser, J. B., Smith, C. P. ; 13. Richardson, J. A., Trull, F. W. ; 15. Barber, W.,

Stevenson, A.; 17. McCalman, D. H., McCormack, E.; 19. Montgomery, W.; 20. Donald, R. C.; 21. Carswell, A., Donovan, A. M.; 23. Collins, A.; 24. Carter, J.; 25. Maughan, M.; 26. Campbell, T. G., Scott, W.; 28. Mackay, E.; 29. Goodwillie, A. M.; 30. Hodgins, J. P.

French.—Class I.—1. Cummings, A., Langton, H. H.; 3. Wedin, A.; 4. Hagarty, E. W. Squair, J.; 6. Balmer, R., Charles, H.; 8. Luke, M. E., Trull, F. W.; 10. Carter, J., Crichton, A., Fitzgerald, L., Henderson, M. E., Hudson, A. B., Maughan, M., Wilgress, G. S.

Class II.—1. Phair, E.; 2. Ormiston, W. S.; 3. Dewart, H. H., Robertson, J. C.; 5. Attwood, E.; 6. Barrie, R., Hunt, E. L.; 8. Campbell, J. (St. Catharines), Fotheringham, J. T., McCormack, E.; 11. Gairdner, T., Mayberry, C.; 13. Read, J. W.; 14. Cameron, A. B., Hodgins, J. P., Middleton, W. E., Smith, C. P., Vanstone, A. L.

German.—Class I.—1. Wedin, A.; 2. Cummings, A.; 3. Squair, J.; 4. Charles, H.; 5. Kraft, A. A.; Phair, E.; 7. Langton, H. H., Trull, F. W.; 9. Carter, J.; Luke, M. E.

Class II.—1. Barrie, R.; Wilgress, G. S.; 3. Balmer, R.; Collins, A.; Gairdner, T.; 6. Read, J. W.; 7. Lee, L.; Smith, C. P.; 9. Attwood, E.; Hodgins, J. P.; Hunt, E. L.

History.—Class I.—1. Fitzgerald, L.; 2. Crichton, A.; 3. Ormiston, W. S.; 4. Langton, H. H.; 5. Lee, L.; 6. Farquharson, W.; Gross, A. H.; Stevenson, A.; 9. Smith, C. P.; 10. Charles, H.; 11. Cummings, A.; 12. Simon, E. H.; 13. Carswell, A.; 14. Balmer, R.; 15. Read, J. W.

Class II.—1. Palmer, J. F.; 2. McCormack, E.; Robertson, J. H.; 4. Squair, J.; 5. Fotheringham, J. T.; Grant, D. M.; Mayberry, C.; 8. Campbell, J. (St. Cath.); 9. Attwood, E.; 10. Henderson, M. E.; Smith, C. J.; 12. Cody, W. S., Tibb, R. C.; 14. Carter, J.; Hume, J. G.; 16. Hudson, A. B.; Wilgress, G. S.; 18. Dewart, H. H.; McCall, D., McKay, J.; 21. Campbell, T. G., Donovan, A. M.; 23. Bonis, H.; 24. Hagarty, E. W.; 25. Kraft, A. A.; 26. Barrie, R., Birks, A. K., Hodgins, J. P., Lawson, A., Shaw, J.

MEDICINE.

Classics.—Class II.—1. Sutherland, J. G.; 2. Collier, M. K.

Mathematics.—Class II.—Sutherland.

English.—Class I.—Sutherland.

Class II.—Kinsley, A. B.

French.—Class II.—Sutherland.

History.—Class II.—Sutherland.

The following is a list of the Matriculants, arranged under the schools at which they received their training:

Upper Canada College, Toronto.—A. B. Cameron, J. Carter, R. Balmer, H. M. Field, J. P. Hodgins, H. H. Langton, A. F. Lobb, E. McKay, J. Picken, C. P. Smith, W. E. Thompson, G. S. Wilgress.

Barrie High School.—J. G. Hume, T. Johnston, D. H. McCalman, J. A. Richardson.

Beamsville High School.—A. C. McKay.

Bowmanville High School.—J. Squair, F. W. Trull, Maggie A. Walsh, A. L. Vanstone.

Brantford Coll. Inst.—G. J. Gibb, Andrew Kerr, Chas. Mayberry, Emily E. Phair, J. H. Robertson, E. H. Sinon, Augusta Wedin, J. McKay.

Brockville High School.—J. A. Page, A. M. Donavan.

Clinton High School.—J. H. Philp, A. Weir, A. Jackson, H. Buie, R. Lees.

Chatham High School.—W. Farquharson.

— *Wilberforce Educatl. Institute.*—Fredrica F. Jones, Sophia B. Jones.

Collingwood Coll. Inst.—Robert Kerr.

Elora High School.—C. J. McCabe, T. A. Brough.

Fergus High School.—A. W. Wright.

Galt Coll. Inst.—T. R. Baldwin, R. Barrie, W. K. George, T. Gairdner, W. J. Millican, H. S. Osler, J. A. Meldrum, (in Med.)

Guelph High School.—W. J. Millican.

Goderich High School.—J. C. Robertson,

Hamilton Coll. Inst.—J. Coutts, T. Crawford, Alice Cummings, Edith I. Durdan, H. R. Fairclough, W. Farquharson, A. A. Kraft, A. Lawson, W. F. Mills, D. McCall, G. Ross, J. A. Ross, R. C. Tibb.

Ingersoll High School.—R. W. Smith, J. Watt, J. S. Cuthbert.

Iroquois High School.—A. E. Grier.

Kincardine High School.—R. Johnston.

Lindsay High School.—J. M. Knowlton.

London Coll. Inst.—L. Lee, A. C. McKay, Emma M. Attwood, Agnes Collins, O. Weld.

Newmarket High School.—W. T. Allan, W. S. Cody, A. F. Lobb, J. D. Robertson, C. J. Smith, H. S. Turner.

Napanee High School.—J. E. Playter.

Owen Sound High School.—A. D. Creasor, Maria Maughan.

Oshawa High School.—Margt. E. Henderson, C. Potter, Mary E. Luke, A. Carswell.

Ottawa Coll. Inst.—A. B. Hudson, A. S. Johnson.

Ottawa Normal School.—T. G. Campbell.

Port Hope High School.—C. Potter, Florence J. King, W. Montgomery, J. Shaw, F. C. Tisdell, A. S. Campbell.

Peterboro' Coll. Inst.—W. Scott, E. L. Hunt.

Richmond Hill High School.—J. J. Bell.

Rockwood Academy.—D. O. Cameron.

St. Michael's Coll., Toronto.—F. McEvay, J. M. Duggan.

St. Mary's High School.—J. T. Fotheringham, H. Bois, Ella McCormack.

St. Thomas High School.—A. K. Birks, T. R. Baldwin.

Strathroy High School.—D. M. Grant, F. Woodhull, W. F. Mills, A. McKellar, G. J. Gibb.

St. Catharines Coll. Inst.—J. S. Campbell, Henrietta Charles, A. Crichton, Lizzie Fitzgerald, J. Hansler, J. McKay, M. K. Collier, (in Med.)

Thorold High School.—A. Frazer.

Toronto Coll. Inst.—F. Boulton, A. M. Donovan, H. H. Dewart, R. C. Donald, E. W. Hagarty, W. E. Middleton, G. J. Riddell, J. G. Sutherland (in Med.), W. C. Barber.

Uxbridge High School.—J. Campbell, J. E. Playter.

Welland High School.—Ada M. Goodwillie, A. B. Kinsley, (in Med.)

Whitby High School.—A. H. Gross, W. S. Ormiston, A. Stevenson, J. F. Palmer.

Waterdown High School.—J. G. Little.

Weston High School.—Jessie B. Kaiser.

Windsor High School.—A. G. Smith.

Yarmouth Seminary, N. S.—J. W. Read.

Private Tuition.—T. R. Baldwin, H. Buie, R. R. Cochrane, J. W. Cook, J. B. Hammond.

[NOTE.—We have endeavoured to make the above list as accurate as possible, but should any errors or omissions be pointed out, we will gladly correct or supply them in our next number.—ED. C.E.M.]

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THE EDUCATION OF GIRLS, AS CONNECTED WITH THEIR
GROWTH AND PHYSICAL DEVELOPMENT.*

BY N. ALLEN, M.D., LL.D., LOWELL, MASS.

ONE of the most encouraging signs of the times is that the attention of the public is being directed more and more to physical improvement. There are undoubtedly serious objections to some of the ways in which this interest is manifested, especially as connected with athletic sports and games. The matter here may be carried too far for the physical and moral interests of those engaged in them. Where this improvement is most needed is in early training in the family, combined with an educational system. Physical improvement should become a leading object both in the family and in the school, and, through all the stages of education, the culture of the body should go hand in hand with that of the mind. It should be made to apply especially to those who need it most, whose organization is weak and defective—where some parts are imperfectly developed or not well balanced, and there is lack of strength and

harmony of function. There should be in all schools a system of gymnastics or physical exercises of some kind, wisely adapted to the varied wants of the pupils.

In advocating a more strict observance of the laws of health and life, and objecting to the present modes of education, it should be distinctly understood that no one department of mental culture, no particular mode of teaching, neither the higher education of woman, nor co-education, are here singled out for criticism; neither is it intended to oppose or object at all to female education; but on the other hand, we advocate the highest possible mental culture for girls that is compatible with their whole organization—that harmonizes with both the physical and mental systems. This constitutes the only sure basis or foundation for all true culture, and its laws are the certain tests of its correctness and success; for, guided by these laws, there is no theory, no experiment, no failure.

In making application of the princi-

* Abstract of a paper read before the American Institute, at its fiftieth annual meeting, July 10th, 1879.—From the *Sanitarian*, N.Y.

ples here laid down, reference will be made more especially to girls, as both in the family and in the school they are less provided with the means for physical development than boys; while, considering the nature and objects of their organization, it is far more important for girls. Within a few years the education of girls has been pressed with great energy, especially in New England. In cities and large villages girls are sent annually to school from five years of age to sixteen or seventeen, with the exception of ten or twelve weeks' vacation each year. In small towns and rural districts the amount of schooling is less, perhaps from one-half to two-thirds as much as in cities. While great stress is laid upon the kind and number of studies, and the standard is raised in the meantime higher every year, scarcely any attention is given to the growth and development of the body. With rare exceptions there is no system of gymnastics or calisthenics provided in schools for girls, and, generally speaking, no regular or systematic exercise that is adapted to promote their highest physical development.

Once it was customary for the girls in our New England families to do a great deal of domestic labour: commencing quite early, they were trained up to it, year after year. Some part of this labour was hard, and its performance made a severe tax upon the muscles. In this way the constitution of girls became strong and vigorous, capable of much endurance. Besides, schools were formerly continued only about half the year, and then, in the intermediate time, girls found abundance of exercise in work. One of the most unfortunate events that ever befel any people was the change in feeling and opinion that came over our New England women in regarding domestic work as menial and degrading. Had this notion been confined to hired service—for that only which received re-

gular pay—this injury would not have been so great. But this notion or sentiment has gradually been taking possession of the minds of our New England women, especially girls, until domestic labour, wherever performed, is considered degrading—is not fashionable—and any other kind of work or business is preferred.

These views have not been confined to the cities, nor to families "well-to-do in the world," but have pervaded all classes everywhere, so that very few of our New England girls are trained up to thorough domestic work. Now, no exercise or employment can be found which is so well calculated to develop strong, vigorous, and healthy constitutions in girls as household work, commenced early, and trained up to the performance of the more laborious parts of it. At the present day it is only the lighter kinds of domestic work that girls are called upon to do, and not those harder portions that develop and strengthen the muscles, that harden and toughen the constitution. As girls are now sent to school after six or seven years of age, and kept there five or six hours a day, with lessons imposed which they are obliged to learn more or less at home, there is but little opportunity to attend to household duties. Education is considered by parent and teacher as paramount to everything else; the growth and development of the body, strong and vigorous muscles, a sound and healthy physical system, are practically regarded as of but little consequence.

What, now, are some of the results of this neglect of physical exercise and supreme devotion to mental pursuits? Let us inquire what are the teachings of physiology on this subject. A fundamental principle of this science is that growth and strength depend upon *exercise*; and, of course, those parts or organs which are most exercised will receive most nutrition. *Exercise* is a

primary law of existence. There may be some growth in parts of the body without much exercise, but it cannot be continued long in a vigorous and healthy manner.

There is what may be called a normal growth—a regular order—in which all parts of the body should be so exercised and nourished that every part, in its own time, may be increased in vitality and strength. If the laws regulating this divine order—this natural growth—are not observed; if certain parts are unduly cultivated, while others are greatly neglected, the consequences must be very injurious, and perhaps ultimately disastrous. This is very well expressed by a distinguished female writer in the following language: "During youth the development of the body must be the first care; its strength, its beauty, the complete establishment of every function, the first conditions for its harmonious growth, must be our ruling principle. There is no possibility of avoiding this necessity—this primary predominance of the material organization: it is Divine law; every violation will bring its own punishment; and woe to the people or the race where this order is systematically inverted: disease, vice, and rapid degeneracy will inevitably mark its history." Because these evils do not follow at once, their danger does not seem to be apprehended. Such is the nature of those evils, resulting from the violation of physical laws, that their effects are not fully witnessed in one generation, but are developed more and more by the laws of inheritance. It may require several generations for their development, but unless the causes are removed, these evils are certain to come, just as sure as any penalties attached to the violation of the laws of the Almighty.

From six to sixteen years of age girls are confined closely to school, except about twelve weeks' vacation each year. No systematic provision

for physical culture is made at the school, neither is there sufficient exercise taken outside for a proper and healthy development of the body. These ten years constitute also the principal time in life for the growth and development of all parts of the system. The period from twelve to sixteen is especially a critical time in the growth and health of girls. These years in the high school or seminary are crowded with most difficult studies, combined with examinations, reviews, and exhibitions, which make a tremendous strain upon the brain and the nervous system.

In examining the effects of such a course of study, the laws of physiology must be our guide. If we should consider, in all its bearings, the relation of the mind to the body through life, it would seem as though the latter should receive as much attention during these ten years as the former. It is a question whether by such a course the great objects of existence might not, in a larger measure, be secured. It is a fact that many young people who grow up in the country, with very limited schooling, excel in scholarship and attainment those trained in the schools of the city. It is also a fact that, where the half-time system of schools has been conducted a long series of years, the pupils (working half of the time) have made as much progress in learning as those attending school all the time.

That we may obtain more definite views of the effects of education as now conducted, let us consider some of the physiological changes produced by it. The muscles and the brain constitute the two leading forces in the human system, and may be represented by the motive and nervous temperaments. It is of the highest importance that these two temperaments should both be fully developed and made prominent in the growth of the body; otherwise the organs included in the other two

temperaments will never attain their proper growth and complete development.

The muscles constitute by far the largest portion of the body; they grow only by exercise, and become strong and healthy only by much exercise. Thus they receive their proper share of nutrition, increase in size and strength, and gradually obtain that most important quality—fitness for work and power of endurance. This exercise of the muscles must commence early, and be continued year after year, so that the fibres of the muscles, by repeated extension and contraction, become hardened and toughened; their possessor can then work, and hold on without being tired; will have what is called *great power of endurance*.

On the other hand, where there is deficient exercise and a want of proper growth and development of this temperament, the muscles are pale and weak, soft and flabby, they have not sufficient vitality and strength to carry on in a healthy and vigorous manner the machinery of the whole system. The muscular temperament, when well developed, receives a large supply of blood, and constitutes the leading agency in causing a free and equal circulation of blood through the whole system; whereas, when the muscular power is weak, there is a great tendency to frequent congestion—especially in the internal organs—which prepares the way for much weakness and many diseases.

Besides, this muscular power, in large supply, is needed to obtain good blood by a more vigorous action of the lungs and stomach; no one thing is more important for good health than a free and equal circulation of the blood. This muscular power can be obtained only by a great deal of exercise when young; and no substitute by friction, stimulants, or other human devices, can be found to replace

it. Individuals deficient in this power labour through life under great disadvantages.

One of the most important agencies in producing changes in the system is *heat*. While the primary source of heat arises from combustion, produced in the process of converting nutrition into blood, the muscles have much to do with it in two ways: 1st, in an active circulation of the blood through all parts of the body, thus diffusing warmth with the blood—the greater the muscular power, the better the circulation; and, 2nd, by the muscles themselves acting as generators of heat in their power of extension and contraction, called animal heat or electric currents—the larger the muscular development and the more highly vitalized it is, the greater is the amount of heat produced by exercise. Such an organization is very important to a people living in a cold climate, or one subject to sudden changes of temperature. What inconveniences, what disadvantages, what sufferings must individuals be subjected to through life who have not, within their own persons, such powerful generators of heat and warmth! Clothing to any extent, and artificial heat from whatever sources, afford poor substitutes. Nature, in its normal state, makes the best provisions for warming the body.

There is another agency holding an intimate relation to the muscles which is of vital importance. The nervous system has three great centres in every individual where nerve force is generated. The brain is the nervous centre for the mind, the spinal marrow is the centres for the muscles, and the ganglia, so called, form the nervous centres for the internal organs. Nervous influences emanate from each of these centres, and, while each class of nerves has its own specific work to do, and the functions of one cannot be transferred to another, they hold, indirectly to each other, most intimate

relations. There is this peculiarity in the nerves that have their seat in the spinal marrow: they are composed of two classes—nerves of motion and nerves of sensation,—which extend to every part of the system. These nerves are constantly brought into action in all kinds of exercise, and, as the muscles compose so large a portion of the body, these nerves are very abundant; the motor nerves are indispensable to anything like healthy organization. It is by the use of these agents that motion and life are kept up in the body.

Suppose, now, that for a series of years the individual takes but little physical exercise; these motor nerves soon lose their strength and power, and the balance between the nerves of motion and sensation is destroyed. And not only this, but, as the nerves centering in the spinal marrow lose in vitality, while the activity of the nerves centering in the brain and ganglia is constantly increasing, the balance of power between these different *classes* is also destroyed. Whenever this balance or harmony of function is once lost it is not easily regained. As the strength and power of these *voluntary* nerves become much lessened from inactivity, the individual is subjected more and more to the influence of the nerves of sensation, which have been over-exercised, and not unfrequently become morbid and irritable. The ganglia, the sympathetic nervous system, under whose influence the organs of the body grow and live, will share also in the undue activity imparted to the other centres by the inaction of the muscular system. No description or language can express fully the terrible effects of these changes in the nerves from a healthy and normal state to one artificial and diseased.

Many girls may go through the whole course of education—the high school, the seminary, and the college—may shine as scholars in every de-

partment of learning; but what can we say of their constitutions—of their physical stamina? Has not the mind or brain been educated too much, altogether, at the expense of the body?

These evils are of such a character that physicians only can judge fully of their nature and extent. It is a fact that there has been, within twenty or thirty years, a great increase of diseases among New England women, of such type and character as could originate only from an excess of nerve tissue or the want of a well-balanced organization. Headaches, and neuralgia in all its diversified forms, hysteria and neuroses in great variety and intensity, have multiplied. Some of these complaints are accompanied with excruciating pain and long suffering, as they are found difficult to treat and almost impossible to cure. When a person of an intense nervous temperament breaks down in health, the invalid condition is apt to continue months or years, and sometimes for life. With such an organization, combined with a want of physical stamina, medicines and sanitary agencies do not so readily afford relief; neither can we call to our aid so fully the recuperative powers of nature. There is no class of complaints so complicated in their nature, so obstinate in treatment, and so doubtful of cure, and at the same time accompanied with so much suffering, as nervous diseases.

There are one or two features connected with this extreme development of nerve tissue which call for special notice. It happens not unfrequently, with persons possessing this organization, that when all their wants are not gratified, when overtaken with disappointment, or overcome by trials, the nervous system becomes irritable and morbid; the disposition and temper of mind are at the same time changed. Without sufficient muscular force, or the control of the voluntary

nerves, such persons become anything but pleasant or agreeable companions.

Another feature in such an organization is its strong tendency to mental derangement. The reason and the will have no controlling influence; the balance in the mental faculties is destroyed; and the individual, composed, as it were, of a bundle of nerves, is governed by mere caprice, whims, or the delusions of an emotional nature. Our lunatic hospitals contain at the present day many just such persons.

Again: We have stated that when in the course of education, and as a result of it, there is a great predominance of the nervous temperament and a lack of the muscular, the internal organs of the body do not stand so good a chance for growth and development. As a consequence, these same organs suffer in weakness and become liable to disease; the lungs from consumptive complaints; the stomach from indigestion and dyspepsia; the bowels from costive habits; and the reproductive organs from a variety of weaknesses and diseases. The heart also suffers in its action for the want of muscular power, and it cannot force the vital currents so well throughout the whole system.

The diseased condition of all these organs originate more or less from the want of muscular power, and this defect comes from neglect of the kind and amount of physical exercises which should have been taken while the body was in a state of growth and development. But an excessive cultivation of the brain, or the mind has, directly and indirectly, done its full share in producing these evils.

To confirm this statement we might summon a great number of witnesses, but must be content with the following: Mary J. Studley, M.D., now connected a long time with the State Normal School for Girls at Framingham, Mass., writes thus: "It has been

my privilege, for more than twenty-five years, to be intimately associated with young women, either as teacher in the school-room in the earlier years, or as medical practitioner or teacher of hygiene, during the latter ones, and every day's added experience only confirms me in the position I have occupied from the first relative to the various forms of nervousness which affect our sex. That position affirms that the best possible balance for a weak, nervous system is a *well-developed muscular system*. Weak, shaky, hysterical nerves always accompany soft, flabby muscles, and it is a mournful fact that the *majority of the young women* whom I meet in schools are notably deficient in muscular development."

The fact here stated brings us to one of the most serious evils in the present modes of education. While it cultivates the mind and stores it with knowledge, training the mental faculties to their highest extent, and capacitating them for the greatest happiness, it develops, at the same time, an organization which, unless it has health, the means and ability to be gratified, becomes susceptible of immense suffering, both of body and mind. It may be said that such a result cannot be prevented, especially in some cases, but, alas! they are altogether too common, and are likely to increase more and more unless some radical reforms are effected.

In describing the defective organization of American women, says Elizabeth Blackwell, M.D.: "We need muscles that are strong and prompt to do our will, that can run and walk indoors and out of doors, and convey us from place to place, as duty or pleasure calls us, not only without fatigue, but with the feeling of cheerful energy; we need strong arms that can cradle a healthy child and toss it crowing in the air, and backs that will not break under the burden of household

cares—a frame that is not exhausted and weakened by the round of daily duties. We need muscles so well developed that shall make the human body really a divine image, a perfect form, rendering all dress graceful, and not requiring to be padded and filled up and weighed down with clumsy contrivances for hiding its deformities; bodies that can move in dignity, in grace, in airy lightness or conscious strength; bodies erect and firm, energetic and active; bodies that are truly sovereign in their presence, expressions of a sovereign nature. Such are the bodies we need; and exercise, the means by which the muscular system may be developed, assumes then its true position as of primary importance during the period of youth. It is the grand necessity to which everything else should submit." This is strong language, but none too strong; the description will be heartily approved by all medical men who comprehend fully the powerful influence of the muscular system.

Such an organization as is here described has two great advantages: 1st, the self-possession and conscious power which it gives a woman; and 2nd, the commanding influence which such a physique everywhere has over others. There is a power, a charm, a magnetism in the female form or organization, when clothed with all the elements of beauty, which no language can describe.

But such a development of the whole person is not easily obtained; it certainly cannot be by performing the lighter kinds of housework, by a short walk now and then, by occasional gymnastic exercises, by a little croquet playing, by any amount of piano playing, or attention to music, to embroidery, drawing, painting, etc.

In no part of female education is there so much need of reform as in physical culture. If the standard of scholarship is to be raised higher and

higher in all our schools for girls, and no greater attention is to be paid to the laws of health and life, grave consequences may well be apprehended.

If this educational pressure were confined to a few individuals, there would not be the same danger; but when the great majority of our New England girls are thus crowded, its effects become widely extended and far-reaching. The remark has been made, "Educate a woman and you educate a race." This saying is full of meaning, and capable of different interpretations. Its meaning or application must depend upon the term "educate"—how and in what way it is done. This "educating" should have reference to the future, as well as to the present; to the body, as well as to the mind; for the highest developments of brain and nerve tissue alone will never go far toward educating a race—in fact, it will inevitably run out.

God has established, by the laws of inheritance, most intimate relations between one generation and another. As yet these laws are very imperfectly understood, but enough is known to show that they depend upon certain conditions, which must be carefully studied and taken into account. These conditions and laws cannot be ignored or set aside with impunity.

Said President Eliot, a few days since, in addressing the Alumni of Harvard University: "Now, everything depends with us and in the learned professions upon *vigour of body*. The more I see of the future of young men who go out from these walls, the more it is brought home to me that professional success, and success in all the learned callings, depends largely upon the vigour of body, and that the men who win great professional distinction have that as the basis of their activity." Now, if young men must depend for success in life upon the "vigour of the body," is it not equally important for young

women, who are to be their competitors in the learned professions, and in various departments of business, and

what is still more important, who are to be, in the broadest and fullest sense, the "educators of the race?"

CORPORAL PUNISHMENT.

BY RICHARD LEWIS, HEAD MASTER, DUFFERIN SCHOOL, TORONTO.

I ENTER a protest against the exercise of corporal punishment in the school, (1) because it fails in its objects, and (2) because it degrades the teacher.

The end of all punishment is the happiness of the pupil and the well-being of society. The intellectual improvement of the pupil renders punishment necessary only when his will conflicts with that improvement. But the want of education in after life is visited by other penalties, none of them taking the form of corporal punishment; and the more the school-punishments for neglected studies can be made to assimilate with the penalties of ignorance which inevitably follow in after life, the more shall we make the offenders appreciate the necessity for education. Now there is no relation between the infliction of bodily pain and the consequences, social and personal, that fall upon ignorance. A severe whipping may make a pupil study a lesson better for a time, but it does not make that pupil any more a lover of study. Possibly the dislike is strengthened because he looks upon the study and not his own indolence as the cause of the penalty; and so long as the teacher inflicts torture, the study and the teacher come to be regarded as the enemies of his peace. It is not my purpose at present to indicate better methods as substitutes for this, too often the most favoured, because the easiest, kind of

punishment. It no doubt does secure a temporary reform. But the effect of all the finer influences which higher minds do exercise over their pupils, the cultivation of the love of study both for the social advantages and the personal delights of a cultivated mind which it brings, is lost. The result of such enforced studies is seen in the fact that, outside of a profession, few who have had the best advantages of a public or high school education continue to be students after they begin the work of life—the sustenance of the body and the acquisition of wealth.

But it is in the moral consequences that the corporal punishment fails the most and produces the worst results. The infliction of such punishment is most common where order is violated, and when any moral law has been transgressed. Most parents and many teachers generally regard "a good whipping" as the best cure for a bad disease. It has even been urged that whipping is justifiable in the school because it has been found to have the best effect upon criminals in jails. Of course such advocates for whipping forget that it is not criminals we have to deal with, but youth, with all its capacities for good which it is the high privilege of the teacher to strengthen and develop; and secondly, it is in all cases questionable if the whipping of young or old criminals does effect good. Whenever pain is arbitrarily inflicted by power, the

sufferer in some form resents. He silently, or with curses not loud but deep, submits. The criminal may be hardened beyond hope, and society in its defence may fright him into submission; but that gives no proof of reformation. In a lesser degree it is the same in the school. Your corporal punishment will not exorcise the spirit of theft, or lying, or brutality, or impurity, out of a bad nature. The cane or the whip will only make the offender more secret in his bad habits. He will conceal his vices, but no whipping will make him love the opposite virtues. The effect therefore is never an advantage to virtue, even when the motive has been disinterested—when the teacher has inflicted the punishment in the spirit of a philanthropist and for the public good. But the probability and the danger is that corporal punishment, in the greatest number of cases, is inflicted under feelings of temporary irritation or of the heaviest anger, and that therefore personal resentment, more than a sense of duty, prompts it. Hence the evil and the danger. The personal resentment is *seen* by the pupil and therefore no moral good results. The offender is taught to conceal, not to reform; and the teacher, under the influence of anger, may inflict serious injuries on the culprit and render himself liable to the penalties of law and to public disgrace.

I am not denying here the expediency of corporal punishment in certain circumstances, under our imperfect social organizations. It is urged, and I do not utterly oppose the necessity, that it is practised in jails, in the army, and in the navy. I have considered its aspect in jails; and in the army and the navy the fact that corporal punishment, which once had as strong advocates in those institutions as it even now has in schools, is now greatly diminished, and motives for good conduct, rather than penalties for

bad, are encouraged, gives evidence of the reformation in that direction.

But this view of the question brings me to the second grand objection I have to corporal punishment in the school-room. *It degrades the teacher.* In the jail, the army, and the navy, it is not the governor of the jail, or the commanding officer, who inflicts the punishment; it is the vilest criminal or the lowest official. The commanding officer would throw up his commission and the governor would resign his office before he would degrade himself by whipping an offender. The teacher stands in the same relation to his pupils that these officers do to their charges, and the degradation is similar if not equal. The consequences of imposing this degrading duty on the teacher have been felt through all ages and in every country. In past times we have been subjected to the sneers and contempt of ignorance, because while enlightened views of our duties had animated thoughtful minds, the masses have looked upon us as objects of fear and coercion to children. Parents frighten their children with the terrors of the schoolmaster's whip. "Take care—you'll catch it when you go to school," is no uncommon threat held out to refractory children, and owes its existence to the fact that we have too often deserved the reputation it suggests.

But it degrades us. The parent who will hold up the teacher as an object of fear will not hesitate to hold him up as an object of contempt or ridicule. Hence the personal insults to which teachers are frequently subjected—ridiculed, called names, or mocked for any personal defects; and this without regard to sex, or age, or services. Mark the respect with which the clergyman is received. The probability is that if children were to speak of their clergymen as they are allowed by ignorant parents to speak of their teachers they would be rebuked for

committing a heinous sin. I shall not endeavour to show how all this recoils in very justice on parents, but I lay much of this wretched training to the charge of corporal punishment.

The office of the teacher is to instruct and discipline in knowledge and duty. But where pupils refuse to obey or violate moral law, then it is the duty of the parent to aid the teacher. If then the case justifies and demands corporal punishment, the parent is the proper person to inflict that punishment. It is the duty of the parent to compel the attendance of a truant child; it is equally the duty of the parent to compel the refractory child to submit to the just regulations of the school, and especially to compel and encourage respect for the authority of the teacher. That respect should in no degree be less than that demanded and encouraged to be shewn to the clergyman. It is no degradation in the parent to chastise his own child. Its necessity may be evidence of bad management, but the authority is vested in him—and only in him—by the highest authority, and, as the parent, it is not so likely that he will exceed what is right as the teacher. Examples will occur where parents refuse to attend to these their special obligations. But my experience convinces me that

such cases form a small minority. The sanction of school authorities, trustees, and inspectors, and above all of public opinion, must unite to support every teacher who desires to expel corporal punishment from his school, and demands the aid of the parent when the child becomes refractory. When parents refuse or fail to secure the necessary obedience, then we may be assured that corporal punishment inflicted by the teacher will also fail. Then the State must interfere. Then the parent is unfit to govern his household, and in self-protection the State must take the charge from the parent if it wishes to save society from criminal consequences.

I press these views on the consideration of my fellow-teachers. The reform lies in their power. A unanimous resolve by them to expel all corporal punishment from the domain of their labours would lead to all necessary co-operation to secure from authority, by better regulations, what is supposed to be secured now by whipping; and the extinction of a degrading and unmanly duty would be one of the steps by which the best relations between teacher and pupil would be strengthened and ennobled, and the office of education respected and elevated.

THE COST OF RAISING A BOY.—The heaviest tax that can be imposed upon a nation is one that is paid in human lives. From whatever point of view the subject may be regarded, this conclusion is irresistible. If we look at it according to purely economical considerations, we may obtain very remarkable results. It has been estimated that an actual money cost of £300 is incurred in raising a boy, cradled among the poorest classes, from birth to manhood. It does not require us to ascend very high in the social scale before we find that this estimate must be trebled. If we take what we may call the cost price of the human unit at any definite time, say at £500 on arriving at maturity, the producing power of the unit in question will bear some relation to that sum; the more costly and careful education pro-

ducing, as a rule, the more valuable result, as to productive power. If the labourer who earns 14s. or 15s. a week adds £50 per annum to the wealth of the country, the physician, the scientific military or naval officer, the barrister, or the engineer, may look forward to the time when his yearly labour will be worth more than a hundred times that amount, even if appraised only by the price he is actually paid for his time. Taking any producing individual, whether valued at £50 or at £5,000 per annum, at any period of his career, no income tax to which he can be subjected can approach in its pressure the extravagant tax of death. For the payment of that tax at once annihilates the total earning power of which there was, until that moment, a fair mathematical expectation.—*Popular Science Monthly.*

THE PROGRESS OF EDUCATION IN ENGLAND.

MR. FRANCIS PEEK, in an article under the above title in the *Contemporary* for August, gives some interesting facts and statistics illustrative of the great advance made in elementary education in England during the last half century, a few extracts from which may be of interest to our readers. "The earliest movement towards a system of national education," he says, "may, perhaps, be said to date from 1832, or about the time of the passing of the Reform Bill. The position of the country at that time is, perhaps, fairly represented by the City of Manchester, where, out of a population of 200,000 only 11,000 scholars were found attending school, although the number of children needing education was over 34,000. Thus about two-thirds of the population were growing up in entire ignorance." The quality, too, of the education that was given, as described in a report of the Statistical Society in 1834, was miserable in the extreme. Half of the schools were the so-called "Dame-Schools," kept by females or old men "whose only qualification for this employment seemed to be their unfitness for every other." Generally these schools were held "in very dirty and unwholesome rooms, frequently in close, damp cellars, or old, dilapidated garrets;" most of them had but two or three books among all the scholars, while the terms of tuition varied from twopence to sevenpence per week. Nor were the common day-schools, "kept by private adventure teachers," much better.

Further evidence of the deplorable state of educational affairs is found in

the fact that in 1838 only nine out of every hundred criminals were able to read and write, their leading characteristic being "a heathenish ignorance of the simplest truths of religion and morality."

The Government at last took the matter in hand, making grants in aid of education and contributing towards the building of schools. By 1868 "almost every parish church had a school attached to it, while various Nonconformist bodies, especially the Wesleyans, were also actively providing for the education of the poor." In 1870 Mr. Forster's Elementary Education Act was passed, providing that every child should receive a certain amount of education, and making parents responsible for their children's attendance at school.

At the time of the passing of this act, Mr. Forster stated that voluntary effort had provided 11,000 day and 2,000 night schools. There were 1,450,000 children on the registers, the attendance being very irregular, and averaging only 1,000,000. "Only two-fifths of the children between the ages of six and ten years, and only one-third of those between the ages of ten and twelve, were receiving even this insufficient amount of education;" the standard being very low in the inspected schools, and probably lower in those uninspected. "In Birmingham, Leeds, Liverpool and Manchester, with an estimated population of 1,500,000, the average attendance in elementary schools was 124,000," while in four such towns in Germany 250,000 children would have been found attending schools daily for eight

years. As to the quality of popular education, in Birmingham and Leeds with a population of 600,000, only 530 pupils passed the sixth standard, which was lower than the *lowest* Saxon or German standard. "In England only 20,000 in a population of 20,000,000 passed the sixth standard; in Old Prussia, 380,000 in a population of 19,000,000 passed every year."

Mr. Peek gives a brief account of the provisions and working of the Elementary Education Act of 1870. It divides the country into school districts, in each of which, unless sufficient school accommodation is provided within a certain time by voluntary effort, a School Board is elected by the ratepayers, and is empowered to build schools with funds borrowed from the Government, repayable in 50 years at 3½ per cent. The Boards appoint local managers to schools and Divisional Committees to enforce the regular attendance of the children. They have power to raise funds by levying a rate over the whole district, and to charge fees to the parents. Both Board and Voluntary Schools receive Government grants according to the excellence of the pupils. Each Board decides whether the education in its schools shall include religious instruction or be altogether secular; denominational teaching, however, being prohibited in any case. There were fiercely fought battles at the first formation of most of the boards on this question of religious instruction, the introduction of which into the schools was vehemently opposed by the Nonconformists. The advocates of the "Bible in the School" triumphed almost everywhere,—in the London School Board by a majority of five to one. It is still open, nevertheless, for a parent to require that Biblical instruction shall not be given

to his child, but secular lessons instead.

By way of contrast to the gloomy description he has given of the condition of elementary Education in England in 1834, Mr. Peek adds the following accounts of the results of the Government inspection in the year ending 31st August, 1877. There were then inspected 15,187 day-schools, "containing 22,033 departments, under separate teachers, and furnishing accommodation for 3,653,418 scholars." There were on the registers the names of 3,154,973 children; 1,100,000 being under seven years of age, 1,929,000 between seven and thirteen, and 125,000 above thirteen years of age. 771,000 passed the prescribed examination without failure in any one of the three subjects—reading, writing, and arithmetic. In addition to the day-schools, 1,733 night-schools, having 57,000 scholars above twelve years of age were recognised as efficient by the Government. Of these 57,000 scholars, 48,000 were examined, and out of every hundred scholars, eighty-seven passed in reading, sixty-nine in writing, and fifty-eight in arithmetic. To carry on this education, 24,841 certificated teachers were at work, these teachers being mainly supplied from forty training colleges, containing over 3,000 students. We find, also, that 270,000 children were presented for examination in specific subjects, and that, of these, 45,000 passed successfully. Grammar, elementary geography, and history, which up to 1876 were treated as specific subjects, are now included in the ordinary work of the schools, and, in 1877, formed (with needlework) part of the examination of more than a million scholars. Ordinary school-drill is also part of the work in every good school, and in 1,178 day-schools military drill is systematically taught to the boys."

RECREATION FROM AN EDUCATIONAL POINT OF VIEW.*

BY GEO. J. ROMANES, M.A.

COMING now to the large and important class—children. It seems a mere commonplace to say that children ought to be allowed to run about and romp and play as much as ever they like or can. Yet this commonplace is far from having a common place in the usages of modern society. Among the upper classes children are much too frequently restrained from taking their full amount of natural play, either by preposterous ideas of genteel decorum, or by the respect due to expensive clothing; while among the lower classes the playground is too often restricted by the limits of the gutter, and even in the parks we too often witness the melancholy spectacle of children still a long way from their teens acting the part of nurse to still younger members of the family. To remedy these evils in the case of the upper classes there is nothing to suggest, except that fathers and mothers should cease to regard their children's clothes as of more importance than their children's health, and learn to estimate at its due value the responsibility of fostering the most precious of their possessions—these living, feeling, loving little ones whose capacities of life-long happiness are being moulded by their parents' wisdom, or destroyed by their parents' folly. In the case of the lower classes the *crèche*, or public nursery, where abundance of romping play is permitted, deserves the most strenuous

encouragement. Children of all classes will play as they ought to play if only Nature is allowed to have her course without let or hindrance from artificial restraints.

But, as the only object in rearing children is not that of making them healthy animals, some amount of artificial restraint is necessary when the time for systematic mental training arrives. Nevertheless, as bodily health is the most essential condition even to mental training, the most fundamental principle which ought to guide the latter is that of supplying it with the minimum cost of the former. Yet in school life this fundamental principle is almost universally disregarded. So long as the general health of a school is maintained at a level compatible with work, and not below the level that declares itself by conspicuous "break-downs," so long nobody cares to reflect whether the system of school discipline is in all particulars the best for maintaining the general health at the highest possible level. I will not wait to consider the disgraceful food which, even in many of our better-class schools, is deemed sufficiently good for growing children to thrive upon; nor will I wait to inveigh against the system of competition which, when encouraged beyond moderate limits, acts as a baleful stimulus to the very pupils who least require to be stimulated. But, confining my remarks to the one particular of punishment, I should like to put it as a question of common sense, whether it

* From an article on "Recreation" in the Sept. *Nineteenth Century*.

would be possible to devise any mode of punishing school children at once more fatuous, more pernicious, or more opposed to every principle of science and morality, than are the modes which are now most generally in vogue. Consider for a moment the practice of giving "impositions." It is not supposed that copying out a stated number of lines is an economical way of gaining information, so that even the plea of imparting instruction cannot be advanced as a benefit to compensate the evil of the method. And this evil is a very serious one. The object of all our methods in education ought to be, as much as possible, to economise effort; the mental energies ought, as it were, to be nursed, so that by their exercise they should lay up the largest possible store of information. But the mental energy which is expended in writing out an imposition is wholly, or almost wholly, profitless; and the amount of energy so expended is considerable—especially in the case of long impositions. For the whole punishment of writing out an imposition consists in the *tediousness* of the process; and tediousness, by the painful class of emotions which it arouses, is the most wearisome or exhausting of the influences that consume the nervous energies. It may therefore be said that in whatever degree the writing of an imposition is a punishment, in that degree are the nervous energies dissipated in a wholly useless manner. Therefore, to say nothing of the actual time that is wasted in the writing of impositions, or of the slovenly style of handwriting which this mode of punishment induces, my great objection to the mode of punishment is that, by consuming the nervous energies in a wholly profitless manner, it stands in direct antagonism with all the principles that I am endeavouring to inculcate. And still more foolishly wrong does this method of punishment become when

it is united, as it generally is, with another and still more objectionable method—I mean the custom of imprisoning children during playtime with the express purpose of denying them healthful recreation. To shut up a child already weary with work in an empty school-room under a depressing sense of disgrace, is something worse than cruel; to a child it is a wrongful injury that does not admit of being justified by any argument; and, in running counter to all the principles both of physiology and of education, it is a sin against society. In most cases the time during which a child is thus confined is the only time in the twenty-four hours that there is an opportunity afforded for any recreation at all; so that, when the weary time of solitude is over and school again meets, the unfortunate victim resumes work with energies doubly exhausted. Even if a child had the stamina of a man, it would be impossible that mental work resumed under such circumstances could be profitable—the faculty of memory being quickly affected by mental fatigue. But, as a matter of fact, owing to the great rapidity of physiological changes in a growing organism, a child has much more need of frequent exercise than has an adult; so that, whether we look at the matter from a sanitary or from an educational point of view, I think it is impossible too strongly to condemn the practice of confining school-children during playtime.

Of course I shall be asked what modes of punishment I would suggest as substitutes for the two which I have thus so strongly condemned. This question, however, I am not careful to answer. Even if it is true that there is a difficulty in providing other and efficient modes of punishment, I should not feel the difficulty to justify the maintenance of modes that are so clearly injurious. But, merely for the sake of giving an answer, I may

say that, in the case of girls, experience derived from many of the higher-class schools shows that discipline may be maintained, either without any punishment at all, or else by such kinds as are more nominal than real. The difficulty in the case of boys is no doubt greater, but not, I think, insurmountable. Many kinds of punishment may here be devised which go upon the principle, not of denying muscular exercise, but of enforcing it. Extra drills or other compulsory exercise during play-hours are modes of punishment greatly to be preferred to those involving sedentary confinement, although I do not pretend to insinuate that compulsory exercise in the way of punishment has the same recreative value as voluntary exercise in the way of play. For my own part, I have no hesitation in recommending corporal punishment as on all grounds greatly preferable to the protracted, tedious, heart-sickening, and health-breaking systems which, in the name of Humanity, are coming more and more into general use. But, however great the difficulty of devising or substituting other modes of punishment may be, I feel sure there can be no reasonable doubt that the modes which are at present so largely in fashion ought to be universally abolished.

The above remarks of course apply almost exclusively to boys' schools; and, looking to boys' schools as a whole, nothing much more remains to be said of them in connection with recreation. The John Bull spirit of this country is in favour of allowing schoolboys to play the hardy and vigorous games which require all the muscles to be brought into active service. The case, however, is widely different in girls' schools; so, before concluding, I should like to add a few words with special reference to them.

School-life is the time when, most of all, healthful recreation is needed. It is then that the organism, being in a

state of active growth, most requires the purifying and strengthening influences of muscular exercise to be in frequent operation; and the development which the organism, during the years of its growth, receives, is carried through its life as an unalterable possession. Yet in the majority of girls' schools how miserable is the provision that is made for securing this development! Even in our higher-class schools the whole mechanism of their discipline seems to be devised with the view of stemming the healthful flow of natural joyousness by the barriers of tedious monotony. On all sides a school-girl is shut up in a very prison-house of decorum; every healthful amusement is denied her as "unladylike;" she is imperatively taught to curb her youthful spirits in so far as these may sometimes be able to struggle above the weight of a mistaken discipline; she is nurtured during her growth on the unhealthy soil of *ennui* in a depressing atmosphere of dullness; and, as too frequent a consequence, she leaves school with a sickly and enervated constitution, capable perhaps of high vivacity for a short time, but speedily collapsing under the strain of a few hours of bodily or mental activity. Now all this is the precise reverse of what school-life ought to be. The only aim of most of the higher girls' schools seems to be that of turning out pupils with a superficial knowledge of a variety of subjects, with such accomplishments as they may be able, by hard practice, to acquire, and with a well-drilled sense of the part that a young lady is to play in the complicated tragedy of etiquette. Now it is no doubt sufficiently desirable that girls, and especially young ladies, should be well educated; but, in my opinion, it is of far greater importance that school-girls should leave school with the maximum of bodily vigour that a wise and judicious nurture can impart, than

that they should do so with minds educated to any level that you please to name within the limits of natural possibility. I should therefore like to see all girls' schools professedly regarded as places of recreation no less than as places of education—as places of bodily, no less than as places of mental culture. And if this is considered too strong a statement of the case, it must at least be allowed that far more permanently beneficial work would be done by girls, both at school and after they leave it, if more permanently beneficial play were allowed. At present in most schools, with all indoor romping sternly forbidden as unladylike, and all outdoor games regarded as impossible recreations for girls of their age and social position, the unfortunate prisoners are restricted in their exercises to a properly prison-like routine—a daily walk in twos and twos, all bound by the stiff chains of conventionality, with nothing to relieve the dull monotony of the well-known way, and one's constant companion being determined, not by any entertaining suitability of temperament, but by an accidental suitability of height. Could there be devised a more ludicrous caricature of all that we mean by recreation.

Do we want to know the remedy? The remedy is as simple as the abuse is patent. Let every school whose situation permits be provided with a good play-ground, and let every form of outdoor amusement be encouraged to the utmost. Schools situated in towns, and therefore unable to provide private play-grounds, might club together and rent a joint play-ground—care, of course, being taken that the social standing of all schools which so club together should be about equal. Some such arrangement would soon be arrived at by town schools if parents generally would bestow more thought on the importance of their children's health, and turn a deaf ear

to all the qualifications of a school, however good, which does not provide for the proper recreation of its pupils.

Of course I shall be met by the objection that, by encouraging active outdoor games among schoolgirls, we should rub off the bloom, so to speak, of refinement, and that, as a result, we should tend to impair the delicate growth of that which we all recognize as of paramount value in education—good breeding. I can only say I am fully persuaded, by the results I have seen, that such would not be the case. The feelings and the manners of a lady are imparted by inheritance and by the society in which she lives, and no amount of drilling by schoolmistresses will produce more than an artificial imitation of the natural reality. Therefore, once let a girls' school be a little society of little ladies, and we need never fear that active play, natural to their age and essential to their health, will make them less ladylike than does the stiff restraint of the present system. Rather would active play, during the years of bodily growth, by developing the co-ordinated use of all the muscles, tend to impart through after-life that grace of easy movement which we all admire, but the secret of which is truly revealed only to the children of nature.

So much, then, for bodily recreation in girls' schools. As regards their mental recreation, I should begin by recommending less mental work. In most of the higher-class girls' schools, as in boys' schools, a great deal more work is required than it is either judicious or desirable to require. The root of this evil is that a girl's education is usually made to terminate at the age of seventeen or eighteen, and, as a consequence, she is expected to gain during these early years of life a sufficient amount of book-learning to serve for the rest of her days. In many cases it is, no doubt, unavoidable that a girl's education should end when she

leaves school ; but I think that, in all cases, education ought to be less arduous than it is in many of our girls' schools. Even if education is to end with school-life, it is better that it should end with a little knowledge thoroughly acquired, than with a confused and half-forgotten medley of many subjects. Not that I advocate speciality and depth of knowledge for girls. On the contrary, I think that the aim here ought rather to be that of generality and width—languages, elementary mathematics, geography, history, art, science, and English literature being all taught, but taught superficially, or without much detail, and in as entertaining a manner as possible. The point, however, which I desire chiefly to insist upon is this, that school-girls ought not to be made or encouraged to work beyond their strength. In most girls' schools competition runs very high ; and I am quite sure that in very many cases the aim of the schoolmistress ought to be to check its undue severity, rather than to stimulate that severity by competitive examinations. I have myself known many cases of girls sitting up late, rising early, and working all day to win their coveted prizes—a state of things which is a sufficiently crying evil even in boys' schools, but which is a still worse evil in girls'—worse because the *physique* of a girl is usually less robust than that of a boy, and because the school-girl is doomed to a smaller amount of outdoor exercise.

Now if less time were consumed in girls' schools by mental work, more time would be allowed for mental as well as for bodily recreation. And, if the time thus gained were judiciously expended, I believe that, even as a matter of mental culture, more would be gained than lost. Suppose, for instance, that some time in every day were set apart for mental occupation of a voluntary kind—a good library of general though selected literature

being provided for the use of the pupils, and the cultivation of art being allowed to rank as “mental occupation.” In this way the more intellectual of the pupils would be able to receive that culture which only general reading can impart, the more artistic would be able to improve themselves in their art by additional practice, and even the unstudiously disposed would find in a standard novel a kind of reading less distasteful than Euclid.

And here while treating of mental recreation among girls, I may add that school-life is the time when provision ought to be made for mental recreation in after-life. Be it observed that mental recreation is impossible unless there is a natural and more or less cultured taste for some branch or branches of mental work. Indeed the capacity for such recreation is clearly proportional to the degree of such culture—an idealess mind being incapacitated for obtaining any *variety* of ideas. Hence the great importance of width of cultured interest, and the consequent duty of the heads of schools to ascertain the mental predilections of their pupils individually, and in each case where such a predilection is apparent, to bestow special attention on its culture. If this were more generally done, I am convinced that the gain to their pupils in after-life would be enormous. We are living in a world teeming with interest on every side, but to make this interest our own possession we require a trained intelligence. It ought, therefore, to be one of the first aims of education to supply special training to special aptitudes, whereby the mind may be brought *en rapport* with the things in which it is by nature fitted to take the most interest, and in them to find a never-ending source of mental recreation. If this method were more universally adopted in girls' schools, ladies as a rule would be supplied with more internal resources of mental ac-

tivity and cease to be so dependent for the stimulation of such activity on the mere excitement which is supplied by the external resources of society. But as it is, whether in the concert room, the picture gallery, the library, or the country walk, it is of most ladies literally and lamentably true, that "having eyes they see not, and having ears they hear not, neither understand." Most ladies have a natural taste for some one or other of the many lines of intellectual activity, and if this taste were developed in early life it would grow with the knowledge on which it feeds, till in mature life it would become an unfailing source of pleasurable recreation. Yet in most cases such a taste in early life is not so much as discovered. For instance, how seldom it is that we meet, even among musical ladies, with any knowledge of harmony!—and this simply because they have never ascertained whether the study of harmony might not be to them a study of absorbing interest. Or, again, how very rare a thing it is to meet a lady who has even a superficial acquaintance with any of the sciences; and how vast is the paradise of intellectual enjoyment from which multitudes of intelligent ladies are thus excluded! And similarly with all the other lines of intellectual pursuit for which a certain small amount of rudimentary initiation is required in order to ascertain whether they are suited to individual taste. So that, as I have said, one of the most important aims of a girl's, and also of a boy's, education ought to be to ascertain and specially to cultivate the branch of knowledge in which most interest is taken. Let us not suppose that by following this advice there is any danger of imparting to young ladies that singularly objectionable and not very easily definable character which is most tersely and intelligently conveyed by the word "blue." No one can have a more in-

tense dislike than I have of the cerulean tint; but wherever I have seen it, I have always been persuaded that it is the previous character which has tinted the learning—not the learning which has tinted the character. Only let a lady be a lady, and nothing but envious ignorance can ever venture to breathe the objectionable word, while cultured refinement in the opposite sex will always discover in the culture of a lady that only which adds to her refinement.

I have now said all that I feel it desirable to say on the principles and the practice of recreation; and I will conclude by adding a few words on what I may call the ethics of recreation.

Health may be taken as implying capacity for work, as well as to a large, though to a less absolute degree, the capacity for happiness; and, as duty means our obligation to promote the general happiness, it follows that in no connection is the voice of duty more urgent than it is in the advancement of all that is conducive to health. By maintaining our own health at the highest point of its natural efficiency, we are doing all that in us lies to secure for ourselves the prime condition for work—that is, the prime condition for benefiting the community to whatever extent our powers may be capable. And, similarly, by promoting the health of others, we are, in proportion to our success, securing to the community a certain amount of additional capacity for work on the part of its constituent members, as well as increasing the individual capacity for happiness on the part of all the members whom our efforts may reach. Therefore I take it that, if we regard this subject from an ethical point of view, it is clear that we have no duty to perform of a more grave and important kind than this—thoughtfully to study the conditions of health, earnestly to teach these conditions to others, and strenuously

to make their observance a law to ourselves. Now of these conditions one of the most important is suitable recreation. For this is the condition which extends to all classes of the community, and the observance of which is, as we have seen, an imperative necessity to every individual who desires to possess a sound working mind in a sound working body. Hence I do not hesitate to say that one of our most weighty duties in life is to ascertain the kinds and degrees of recreation which are most suitable to ourselves or to others, and then with all our hearts to utilize the one, while with all our powers we encourage the other. Be it remembered that by recreation I mean only that which with the least expenditure of time renders the exhausted energies most fitted to resume their work; and be it also remembered that recreation is necessary not only for maintaining our powers of work so far as these are dependent on our vitality, but also for maintaining our happiness so far as this is dependent on our health. Remembering these things, I entertain no fear of contradiction when I

conclude that, whether we look to the community as a whole, or restrict our view to our own individual selves, we have no duty to discharge of a more high and serious kind than this—rationally to understand and properly to apply the principles of all that in the full but only legitimate sense of the word we call recreation. Again, therefore, I say if we know these things happy are we if we do them. And if we desire to do them—if as rational and moral creatures we desire to obey the most solemn injunction that ever fell from human lips, “Work while it is day”—we must remember that the daylight of our life may be clouded by our folly or shortened by our sin; that the work which we may hope to do we shall be enabled to do only by hearkening to that Wisdom who holdeth in her right hand length of days, in her left hand riches and honour; and that at last, when all to us is dark with the darkness of an unknown night, such Wisdom will not have cried to us in vain, if she has taught us how to sow most plenteously a harvest of good things that our children’s children are to reap.

LET US STUDY THE CHILDREN.

BY MRS. R. R. BIRD.

DID you ever wish, O mother! as you have read or heard of the wonderful Kindergarten system which Froebel, the child-lover, has inaugurated into the educational world, that there was a Kindergarten within easy reach for your own little ones?

You need not again wish it; there is one within easy reach; your own hand may touch it, your own eyes behold it. It may spring up right within the walls of your own home, if,

—if,—you will but consent to be a child among your children, knowing them and learning of them, having the text for your guide and inspiration, “And a little child shall lead them.”

What a blessing to little humanity is the system which Froebel has set forth! It is an oasis springing up in the hitherto dreary waste of the school-life of children; and as the germs of vegetable life are sometimes borne

from afar,—now in the plumage of migrating birds, now on the crest of an in-coming wave, and now on the wings of the flying gales,—so from that green spot in the desert have the germs been borne into many quarters, sprung up and yielded abundant fruit, until at last its influence seems to permeate the whole educational world.

Friedrich Froebel may be termed the great reformer in the realm of education; and,—with all due reverence may I say it,—as Christ, the Great Reformer, knowing what was in the heart of man, began his work of reform in the spiritual realm by stooping to the level of humanity, and there finding in humanity itself,—in its impulses and aspirations,—the links of the chain of Divine love which unites man with his fellow-man, and binds him at the same time to God above him, so Friedrich Froebel, acquainting himself with little children, with the laws of growth of their little bodies, hearts, and minds, began his work of reform in the realm of education by finding in the irrepressible activities, the boundless curiosity of children, and the infinite interest which they take in everything, the chains which bind them in love to the truths that lie around them, and lead them to thirst for those that are above and beyond them. In fact, Froebel but strove to carry on the work which Christ began when He took little children in His arms and blessed them. Christ saw in a little child what none else had ever seen. When He said, "Ye must become as little children," He turned the key which unlocks all the treasures of the kingdom of heaven. Froebel but caught the refrain and wafted it on, to be caught up and wafted on again by all lovers and teachers of children.

Shall we not become his disciples, doing all we can to further the great work? His doctrine is not a narrow one, applicable only to the compara-

tively few who may have access to all his books and the use of his gifts and occupations; but its spirit is of broad application, finding room wherever there are children to be trained and taught. Wherever there are children to be trained and taught, and a mother true, earnest, loving, sympathizing, studying the laws of growth of their little bodies, minds, and hearts, there may grow a Kindergarten.

Yes, we mothers may all have our Kindertagens if we only will. If not able to carry out the letter of Froebel's teachings, we may, at least, catch the spirit of them and infuse it into the home-life of our children. We may not have access to all of his works, nor the advantage of his gifts and occupations, technically so considered; yet if we will consent to be a child among our children,—to be with them upon that blessed "you-and-I" level, from which springs all knowledge of them, all sympathy with them, and which is the main-spring of the influence we may wield over them and the inspiration we may breathe into them,—we need not lack the apparatus for teaching them. It will spring up all around us. Whatever attracts the notice of children, and to which their attention may be drawn,—their games, their books, articles of clothing, furnishings of the table, household furniture, household pets, and out-of-doors, all natural objects with which they daily come in contact,—all may lend their aid in ministering to their love for knowledge and in still further creating a taste for it. It needs but the earnest, loving touch of a mother's hand,—herself filled with a power of appreciating wisdom, with sympathy for the children, and with a knowledge of their little needs and capacities,—to make even the commonest things within their grasp gleam and glisten with golden grains of knowledge.

But did you know,—O mothers

who pride yourselves upon your well-kept houses!—that where the prescribed laws of perfect housekeeping exist there will not live a Kindergarten? Beware of fettering the limbs of your little ones by weaving around them too early the fine threads of which your well-constructed house-keeping-web, with its lines and angles of geometrical accuracy, is composed. Your children will soon see that their life-blood of freedom is surely to be drawn out from them, will fly and buzz around a little while and then wisely seek more attractive quarters.

A Kindergarten may spring up and flourish in a perfectly-kept *home*, but not in a perfectly-kept *house*. There must be a compromise between house-keeping and homekeeping. If there be a strife for the mastery, let the former yield the point to the latter. Perfect housekeeping is the swallowing-up of individual comfort, individual freedom, individual action, into one groove laid out by the whim and wishes of one whose word must be law; while homekeeping looks after the comfort, freedom, habits, and wishes of each individual member of the household by the introduction of those charming little irregularities which give some homes such an attractive, free-and-easy atmosphere.

In the intricate machinery of a well-kept home, the wonderfully flexible hands stoop gladly to the happy, noisy children; reach up in loving tenderness to the feeble grandfather; embrace indulgently the rough, rol-

licking school-boy; yield considerably to the all-too-busy, care-worn father; relax mercifully for "the manservant and maid-servant;" and stretch out hospitably to the "stranger within the gates." And this by a beautiful spirit of compromise,—of each bending to the other, and by all working together in quiet consideration of one whose heart,—ever-cheery, ever-loving, ever-lenient, ever-sympathizing, ever-merciful, ever-generous, is the motor which moves and controls the whole.

In the sunshine of such a home will our own children like to bask, and to it will others wend their little footsteps to find that freedom which is their light and life, as surely as the leaves of window-plants all turn themselves toward the sun to drink in their light and life.

Let us then be sure to prepare such a home-soil that we may have a Kindergarten. Our own children may form the nucleus, and around it will cluster all the little playmates, who will find themselves gravitating,—some at one time, some at another, now here, now there,—toward our happy little centre; and while we shed the atmosphere of our influence and the dews of our teachings upon our own little ones, all the other followers will unconsciously breathe in the atmosphere and drink in the dews.

And thus having our Kindergarten, we ask: What shall we do? where shall we begin? *Let us study the children.* "A little child shall lead them."

—*The Primary Teacher.*

STRAY NOTES ON EDUCATION.

BY "CLANCAHILL," HAMILTON.

IT is a generally conceded maxim that "Knowledge is Power,"—not that dormant knowledge which, like the wealth of the miser, or the buried talent of the faithless steward, lies uselessly hidden from the light; but that active, vigorous knowledge which, by due circulation, benefits the general community without at all depreciating its own value. Nor is it the false knowledge of the scientist, who, carried away by his own conceit, seeks to ignore the agency of a Supreme Being in the system of creation, and to blast man's hopes of future happiness by placing his origin and destiny on a par with the brutes of the field; but the sublime knowledge of the Christian that exhibits the imprint of the Almighty hand in every phase of nature, and teaches mankind that the reward of a well-spent life is an eternity of bliss in the home of the Sovereign Good.

In some of the callings of life the acquisition of knowledge is an actual necessity, in others it is an invaluable assistant, and, in every instance, the truth of its power-possessing properties can be fully proved. Numbers of young people daily deceive themselves with the idea that as their intended occupations are not among what the world calls "the learned professions," there is no occasion for their becoming scholars. This is a great mistake, for, influenced by this opinion, hundreds have risked their prospects in a state of ignorance that dwarfed their usefulness into that of mere machines, or confined their occupations to the drudgery of "hewers of wood and

drawers of water." Had they possessed themselves of that learning they formerly treated so lightly, with what a wealth of discovery and improvement they might have enriched their respective occupations, as well as have added materially to their worldly condition? It is to be hoped that the time is not far distant when the value of a good education will be proportionately appreciated by the postulant for the plough of the farmer, the anvil of the smith, and the professor's chair.

GRAMMAR AND LITERATURE.

The true philosophy of language may be summed up in three words: correctness, power, and beauty. Correctness of expression can be acquired, not by a mere memorizing of grammatical definitions and principles, but by a just perception of their utility, with a power to grasp their force and application. It is not enough, for instance, to know that a verb is a word that expresses "existence, condition or action," one must also have a definite idea of the office of the verb, otherwise there would be a likelihood of classifying as verbs only such words as naturally express the functions contained in the definition. In the sentence "Dost *thou* me?" the word *thou*, in its nature a pronoun, is invested with the properties of the verb—emptyfying the fact that almost any word in English can be verbalised. This will go far to prove that, in the study of grammar as well as of anything else, it is the spirit of the principle and not a formal comprehension

of its words that carries true knowledge. Educational circles are filled with schemes of analysis and treatises on "How to Parse," exhibiting skillful mechanism, it is true, but telling little or nothing of their utility or profit. The *how* is duly considered, but the *why* is neglected, and so it is left to the teacher's generosity or to the student's own intelligence to develop the idea that parsing teaches that words, like the trees of a forest, have their relations and distinctions, their respective uses and properties, and that analysis furnishes the grammarian with a knowledge of the framework of human thought expressed, as valuable as that possessed by the skilled surgeon in regard to the human body. Good sense must go hand in hand with correct formation. The question "Is it reasonable?" should even have preference of "Is it grammatical?"—for it is unnecessary to prove that a sentence may be strictly grammatical but be woefully illogical.

Decorations, chaste or ornate, are as allowable in language as in painting, in architecture, or in any other human art. Rhetoric, with its figures, beautiful, captivating and inspiring, is the color-fount of language, supplying the material for a word picture as attractive as the fairest gem of the studio. The prose writer's lofty conceptions, the poet's sparkling creations, the thrilling periods of the orator, and the philosopher's bold syllogisms, are alike beautified by a discriminate use of the flowers of rhetoric. Grammar may teach propriety of expression and Logic reason, but Rhetoric alone has the power to rouse the feelings and awaken the sense of the beautiful. Logic may say in a commonplace manner: "They moved with the utmost speed, and their strength was exceedingly great;" but how vivid and striking the statement becomes when Rhetoric speaks: "They were swifter than eagles, they were stronger than

lions." A remarkable sentiment once uttered by Napoleon I. forcibly illustrates the power and beauty of rhetoric: "The life of a happy man is a silver ground studded with stars of jet; the life of a miserable man is a dark ground with a few stars of silver."

MATHEMATICS.

The Greeks called mathematics "learning" *par excellence*; and if we consider the profundity and precision with which it invests the successful student we must acknowledge that there is a strong germ of truth in the statement. Arithmetic, as the most generally useful of the mathematical branches, merits the most attention. The multiplicity of rules with which old mathematicians filled their text books, clogged rather than freed the road to arithmetical knowledge, as tending to make the operation merely mechanical, and to exercise the student's memory rather than his perception. The comparatively recent introduction of the "Unitary System," as possessing the power of centralizing all arithmetical principles, has received considerable approval. And very properly so, for when the student has been once trained to the exercise of original ideas he will derive more real profit from his work than from the study of the aggravating formulas and crotchets of the older systems. Algebra extending the principles of Arithmetic and quickening the thinking powers is an invaluable assistant by which to reach the higher branches of mathematics; while Euclid, with its invaluable demonstrations, stands out as the common friend of reason and quantity.

HISTORY AND GEOGRAPHY.

History affording recreation and instruction is a highly important study. Its great events make it interesting; the moral lessons derived from an analysis of these events make it in-

structive. The latter consideration is the true philosophy of history, and it should receive the greater share of attention. The history of Charles I. and the "Great Rebellion" is replete with striking events. But does it concern us as much to know the dates of its beginning and end, or what particular battle was won or lost, as to know that the high-handed measures of the monarch and the criminal ambition of the subject demoralized English manners, wasted the fairest of English lands, and hurried to untimely graves the noblest of England's sons? In this particular instance we have a fine example of the fatal results that may follow when the rights of the people or the prerogative of the monarch are pushed to extremities; and how grossly that noble sentiment, patriotism, can be abused when advocated by selfish and designing men. For, if the execution of Charles I. was not a sufficient atonement for his political sins, surely the statesmanship and military genius of Oliver Cromwell will not shield from odium the merciless, iron-handed Commonwealther, who hounded to death his misguided but not ill-natured king, and who, in the midst of his treacherous massacres, sang hymns and psalms to the Giver of life and death.

Geography and History are closely connected. History may be said to describe the operations of a nation's mind; Geography, its form and features. As we may be interested in

the story of a nation's adventures, as set forth in its history, so we may be equally interested in considering the attractions with which nature has endowed it, as well as be benefited by a knowledge of its material worth. Geography tells us of the noble river, weak in its origin, like the life of man, but increasing in power and magnitude as it approaches its eternity the ocean; of the lofty mountain lifting its head in majesty towards the heavens, as if indicating the true aim of human effort; of the mighty ocean, itself the emblem of infinity; of the mines of the earth, stored with wealth and comfort-giving material; of the fertile fields and forests, teeming with the requisites for human sustenance and convenience; and of the multitude of objects in general that serve to excite the grand and exalted sentiments of the mind or the more prosaic considerations of business and commerce.

The true object of knowledge, then, is the development of man's best faculties—to make him a useful, intelligent and virtuous member of society. "There is no royal road to learning" is an old and true saying; nor can it be purchased, except in so far as industry and perseverance can be considered articles of exchange. Knowledge is neither seclusive nor limited, but, like the solar orb itself, it shines for all, shedding its golden light equally for the benefit of the "hardy sons of toil" as for the more favoured offspring of wealth and title.

EXAMINATION FRAUDS IN ENGLAND.

WHAT is known as the "Goffin Case" has excited a great amount of interest in the scholastic profession in England during the last few months. "Payment by Results" flourishes there with all the luxuriance of a noxious weed, and amongst the various means adopted to carry it out are examinations held annually in May under the auspices of the Science and Art Department of South Kensington. These embrace some twenty-four subjects in Mathematics and in Physical Science. Men of eminence are selected as examiners. Professors Huxley and Michael Foster, for instance, were the examiners in Physiology and Biology at the late examination, and Norman Lockyer in Physiography. Professors Goodeve and Twisden examined in Mechanics, Professors Roscoe and Frankland in Chemistry, and Professor Guthrie in Magnetism, Electricity, Sound, Light, and Heat.

Examination papers are sent under seal from the Science and Art Department to the various bodies responsible for the management of Science Classes throughout the country. Pupils may select certain groups to be examined upon, and all answers are forwarded for examination to South Kensington. The report of the examiners decides what amount of money goes to each school as the result of the examination,—a certain sum being allowed for every scholar who satisfies the examiners. Of course this system is a direct appeal to the cupidity of school managers who have charge of science and art classes, and this induces them to place a premium upon those teachers

who are the most successful crammers. Mr. Goffin, Head Master of the United Westminster Schools, has had wonderful success in passing students at these examinations; indeed, the skill he claims for work of this kind far surpasses that of any teacher we have yet heard of, with but one exception. It has been no uncommon thing for him to pass pupils of twelve years of age and under in subjects which are difficult enough for an ordinary matriculation examination, and we find from a statement of his own that he actually sent a boy of twelve years of age to be examined in twelve out of the twenty-four subjects. In one year his scholars won a studentship, two elementary school scholarships, a gold medal, a silver medal, and a bronze medal. Is it any wonder that they presented him with a testimonial valued at forty pounds? It was worth Mr. Goffin's while to be successful, for his employers paid him six hundred pounds a year, and he earned from the Science and Art Department above four hundred pounds in addition. Five thousand dollars a year was the comfortable sum his efforts in preparing students of all ages to pass successfully the ordeal of the Science and Art examinations yielded him. At last his remarkable success aroused the suspicions of the authorities at South Kensington, and more than a year ago, owing to information conveyed in some mysterious way, three officials, with Colonel Donnelly at their head, were appointed to investigate his case. Their report led to the cancelling of the examinations of the pupils who were examined from Mr.

Goffin's school in the May of last year. This was not all,—he himself was for ever disqualified from teaching, or earning payments under the Science and Art Department. Whatever the charges were that were made against Mr. Goffin, he met them with an unqualified denial, and in his protest to Lord George Hamilton, the head of the Education Department, he says: "I declare in the most solemn manner, without the least hesitation, equivocation, or mental reservation of any kind, that I never had in my life any such information as I am charged with, and I challenge any of your officials to produce the least particle of direct evidence in support of the charge." He at the same time accuses Colonel Donnelly of serious misconduct in the investigation of his case, such as calling one boy who did not give him such an answer as he wished to be given an "incorrigible liar," another "an infernal young scamp," and the class as a whole was characterized as "a set of wretched, miserable boys, who are systematically taught to lie." The Colonel did not deny using such language, but justified it by the nature of the evidence elicited. Mr. Goffin's Board took the matter up and instituted a searching inquiry of their own, the result of which was that they held the accused altogether blameless and determined to retain him in his position.

The *Schoolmaster*, the organ of the elementary teachers in England, took the matter up next and urged a combined effort on the part of the teachers of the country to have a fair and open trial for Goffin before a select committee of the House of Commons. The case came before the teachers at their Conference held at Nottingham in Easter Week of this year, and the resolutions then agreed upon tended in the same direction as the suggestions of the *Schoolmaster*. Very strong feelings of sympathy were felt and

expressed for Mr. Goffin on account of his having been condemned without an opportunity of defending himself. The Conference, however, was very careful not to commit itself to any expression of opinion as to his guilt or innocence, though he protested the latter earnestly before them. A "Goffin Defence Fund" was started, and contributions flowed in from various local Associations throughout the country. The members of these Associations also exerted their influence with the local members to have the case properly put before the House of Commons. During all this time the general body of teachers were kept in almost total ignorance of the specific charges made against Mr. Goffin, and of the evidence the South Kensington authorities possessed to substantiate them. We have, therefore, to rely upon what he himself tells us previous to the report of the Select Committee. As early as 1865 he says he was accused of having the *same set* of questions in Chemistry as those used at the examination; this he denies, but admits that he had the *same questions*, though not the *same set*. "In 1865," he writes, "the students had ten questions to answer out of twenty-four, and of these twenty-four they found no less than ten of their old friends of former years, two or three in a very slightly modified garb, but most of them identical even in words. . . . The questions themselves are to be found in Buckmaster's 'Elements of Chemistry,' second edition, 1863. This book was read by the class, and the questions found at the end were answered, a few at a time, in my weekly examinations, and hence had not only been seen, but *answered*, by the students." An important witness against him was a Constable Ledger, a former pupil teacher, and Assistant Master under him, who testified to Colonel Donnelly that "immediately before *every* succeeding examination the class was in-

structed in questions which were afterwards found in the examination paper." "This," Mr. Goffin says, "is more or less true, certain kinds of questions, which always recur, were very probably touched upon during the last two or three lessons. What teacher does not give a lesson immediately before an examination? Do not students in training read up to the last minute? Do not University men *grind* up to the moment of entering an examination room? It may or may not be true, that another pupil showed M. N. (the Constable in question) an examination paper which I may have left in a book on the mantelpiece. It was certainly one of previous years, if at all. I usually had a number in my desk." This man Ledger had done Mr. Goffin's family the greatest injury a man could be guilty of,—he had ruined his sister, and because the injured man treated such villainy as it deserved and dismissed the scoundrel from the school, he expressed a determination in the hearing of numerous persons "to have his knife in him," and, Mr. Goffin says, adopted this effective way of doing it. His evidence is of little value, therefore, beyond showing how base human nature may become. With such facts as these before them it is not to be wondered at that the teachers of England, who seem inspired with a strong *esprit de corps* worthy of emulation amongst ourselves, were roused to the highest state of indignation at the arbitrary treatment of one of their number by what they regarded as a secret tribunal, from whose decision there seemed to be no appeal. Their united efforts were not without success. Sir Sidney Waterlow, who had been Goffin's staunch friend throughout, procured the appointment of a Select Committee of the House of Commons, with Mr. Lowe as chairman and himself and Lord George Hamilton as two of the members. Mr. Pell, one of

the Agricultural Commissioners at present travelling in Canada, was also one of the number. Its duty was to investigate the truth of the charges made against Mr. Goffin. The proceedings are reported in a blue-book of nearly 200 pages. Mr. Heller, the able and indefatigable secretary of the National Union of Elementary Teachers, who had rendered invaluable aid to Mr. Goffin during the investigation before the Committee, prepared an abstract of the evidence for the use of the Executive Committee of the Union. From this we gather that Col. Donnelly was induced to institute an investigation by a "Paper" handed to him while the examinations were in progress by a brother of one of Mr. Goffin's Assistant Masters. He had received it from another assistant, who had got it from a boy in Mr. Goffin's class whose name he had forgotten. The Colonel presented an analysis of note books taken by his officers, and contended that this proved the authenticity of the "Paper," and that Mr. Goffin had, beyond a doubt, obtained previous information of the examination papers. The inferences he drew in his analysis were characterized as "fair" in a memorandum signed by Professors Roscoe and Frankland. Several of Mr. Goffin's assistants were examined, and although they had in the previous investigation made by the South Kensington officials denied that they had any reason for suspicion of improper conduct on his part, they now seriously contradicted their previous evidence. One man admitted that while "reading up" he had received, three days before the examination eight or nine questions in each of the papers, Sound, Light and Heat, Electricity and Mathematics, bearing directly on the examination subjects. In 1878 he had three out of eight questions touched on in Chemistry. The remarkable foresight Mr. Goffin displayed in "hitting" questions,

was a subject of common talk among masters and boys. Lest any of our readers should be ignorant of this expressive term, we may explain that to "hit" questions is to anticipate those that appear on an examination paper. Another term pertaining to the art, or shall we say science, of preparing students successfully to pass an examination, is the word "tip." "Tipping" is the very essence of cramming. To "tip" questions is to give only those to your students that will bear upon what may appear on the examination paper. Had these terms been known here when Judge Patterson investigated the charges of collusion between Mr. Kirkland and Dr. McLellan, they would have saved a good deal of circumlocution on the part of those who proved themselves skilful at both "tipping" and "hitting." Another man said that on the eve of an examination in Mechanics he was asked by Mr. Goffin if he was going to present himself, but replied in the negative, as he was not prepared. "I was therefore invited into Mr. Goffin's private room, where he very kindly explained to me, with sketches, some questions which he *thought* would very likely come up. Under these circumstances I sat for the examination, and guess my surprise when the question-paper was handed to me and carefully read; I felt quite at home, and answered my questions in a very short time, for they were identical with those that Mr. Goffin had explained to me about two hours before."

There was other evidence similar to this which we need not particularize. Mr. Goffin, in his defence, gave a complete and emphatic denial to the charges and tried to weaken the evidence of Colonel Donnelly's informant by accusing him of having offered him a bribe to secure his appointment under him in the Westminster Schools. He showed that the

"Paper" that led to the suspension of his certificate had not been authenticated, and asserted that it was not supported to any appreciable extent by the note books of which Colonel Donnelly had presented an analysis. He proved that no single note book contained more than one or two points bearing on a question, and that it was only by piecing out such notes that testimony was obtained. He showed that the "Paper" had not been traced to any boy in the school, and boldly asserted that it bore internal evidence of being a concoction, containing parts not found in his lessons; these he believed had been inserted, with the examination questions in their hands, by those who had been instrumental in handing the "Paper" to Colonel Donnelly. He admitted that the most damaging evidence against him was a note book marked "No Name," but, he remarked, properly enough, until this had been traced to somebody in the school, it should not be taken as evidence against him.

Unfortunately for Mr. Goffin, through the assiduity of one of the South Kensington officials, the writers of both the "Paper" and the "No Name" note book were identified, and only one of his own witnesses had been examined when they were brought forward and proved that the documents in question were theirs, and had been written either from Mr. Goffin's dictation or copied from slips of paper he had supplied. The Committee then decided to hear no further evidence.

Another serious charge against Mr. Goffin, which was substantiated by several witnesses, was the falsification of registers, by marking those present who were not in attendance. The report of the Committee is so short that we insert it entire.

The Select Committee appointed to inquire into and report upon the circumstances relating to the suspension of the Certificate of Mr.

Goffin by the Science and Art Department, have agreed to the following report :—

Your Committee are satisfied from evidence taken on oath, and from documents laid before them :—

(a.) That Mr. Goffin, the Head Master of the United Westminster Schools, did disclose to his pupils in certain Science classes just previous to the examinations, the answers to a large number of questions in the Examination papers.

(b.) That the information which he thus gave was of such a nature that he must, before imparting it to his classes, have known the contents of the Examination papers.

(c.) That the registers containing the attendance roll of the pupils of Mr. Goffin, were in certain cases falsified by Mr. Goffin and his assistants, to obtain payment on pupils who had not made the necessary number of attendances.

(d.) That the statements in the petitions signed by pupils and teachers on Mr. Goffin's behalf, and presented to the Governors of the United Westminster Schools, were false, and were known by some of the signatories to be so.

Previous to his appointment in 1874, as Head Master of the United Westminster Schools, Mr. Goffin was master of St. John's School, Woking. Your Committee have taken evidence as to his system of teaching Science there, and from that evidence it is clear—

(a.) That a large number of pupils, including mere children, were enabled to pass examinations in a great number of Science subjects of which they knew scarcely anything, by being systematically taught by heart, on the day of, or the day previous to the examination, answers to the questions set.

(b.) That fraudulent fabrication of the attendance registers was systematically practised, in order to obtain payment upon the pupils who, by another fraud, had been enabled to pass the examination.

The investigations now held have disclosed the fact that Mr. Goffin has carried on a course of fraud, in a manner, and to an extent, which must have greatly lowered the tone of morality among a large body of scholars and teachers.

Your Committee record their emphatic opinion, that fraud, thus reduced to a system, and almost elevated to the dignity of an art, requires the immediate attention of the Education Department, with a view to the adoption of such further precautions as will prevent a repetition of these disgraceful practices.

Your Committee further express a hope that the Department will deal as leniently as their public duty will allow with the teachers who, in the course of this inquiry, have by their evidence exposed themselves to the charge of complicity with some of Mr. Goffin's proceedings.

It is speaking soberly to say that this report fell like a thunderbolt upon the whole teaching profession of the mother country.

The press without exception took the same view as the committee, and Mr. Goffin was dealt with in severe terms.

As a sample of the criticism of the case, the Edinburgh "Scotsman" remarks that the upshot of all the teachers' "eloquent speeches and indignant letters is that Goffin the champion is thrown back on their hands as Goffin the rogue."

Our readers will not fail to have noticed the strong resemblance between this case and the one we have already referred to which Judge Patterson adjudicated upon. The main difference between them is in the decision arrived at, and who knows whether this would not have been the same had Mr. Goffin had the benefit of a judicial mind accustomed to sift and weigh evidence to submit his case to as Messrs. Kirkland and McLellan had, instead of a committee of the House of Commons, even though it was presided over by a man of so brilliant an intellect as Mr. Lowe. But anyone who is inclined to this opinion must have it greatly weakened when we add that the Executive Committee of the National Union of Elementary Teachers, a body whose functions resemble those of the Board of Directors of our Provincial Association, and of which Mr. Goffin himself was a member, has after mature deliberation accepted by a formal resolution the report of Mr. Lowe's Committee as justified by the evidence.

Though disgrace has thus apparently been brought upon the whole teaching

profession by one man's misconduct, we have no doubt that the investigation will result in the teachers obtaining what they earnestly desire, a

recognized means of appeal from such Star chamber proceedings as those of the Science and Art Department of South Kensington.

THE LESSON.

A TEACHER sat in a pleasant room,
 In the waning light alone ;
 Her head was bowed in anxious thought :
 With the work and care the day had brought,
 She had faint and weary grown.
 And the task which seemed light in morning's ray,
 As she thought of it now at the close of the day,
 When weary with toil and faint with care,
 Seemed more than human strength could bear.

Since the scholars had left her, one by one,
 Full more than an hour had flown ;
 She had given them each a kind good-night,
 And while they lingered her eyes were bright,
 But they dimmed with tears when alone.
 She had borne the burden the day had brought,
 The daily task she had faithfully wrought,
 And now, to solace her weary mind,
 A lesson of life she sought to find.

The work and cares of the day she scans,
 But no lesson from them receives.
 "The day has no lesson for me," she said ;
 "A lesson, I'll read, in the Book instead,"
 And she opened her Bible leaves.
 When lo ! the lesson she had sought in vain,
 To draw from her fagged and weary brain,
 At once from the holy page she drew,
 Though always the same, yet ever new.

"Establish Thou the work of our hands ;"
 'Twas this that met her gaze,
 The words went up from her lips like prayer ;
 And as she read she treasured there
 A lesson for many days.
 Not alone for her let the lesson be,
 May it come as well to you and to me.
 Let our prayer be the words of holy writ,
 "Yea, the work of our hands establish Thou it."

ARTS DEPARTMENT.

[NOTE.—We continue this month the selection from the Annual Examination Papers of the University of Toronto, for Junior Matriculation; also the selection from the July Examination Papers of the Education Department for First, Second, and Third-Class Teachers, adding solutions to several of the Mathematical papers. ARCHIBALD MACMURCHY, M.A., Math. Ed. C. E. M.,]

UNIVERSITY OF TORONTO EXAMINATIONS, 1879.

JUNIOR MATRICULATION.

ALGEBRA.—HONORS.

1. Define a *fraction*, and prove that

$$\frac{a}{b} \times \frac{c}{d} = \frac{ac}{bd}.$$

Simplify

$$\frac{\frac{\frac{1}{1-a} - \frac{1}{1-b}}{\frac{1}{1-a} - \frac{1}{1-b)}}{\frac{1}{1-a} - \frac{1}{1-b}} \times \frac{\frac{\frac{1}{1-b} - \frac{1}{1-c}}{\frac{1}{1-b} - \frac{1}{1-c}}}{\frac{1}{1-b} - \frac{1}{1-c}} \\ \times \frac{\frac{\frac{1}{1-c} - \frac{1}{1-a}}{\frac{1}{1-c} - \frac{1}{1-a}}}{\frac{1}{1-c} - \frac{1}{1-a}}.$$

2. Describe methods of finding the G.C.M. of two algebraical quantities.

Shew that $(a-b)(b-c)(c-a)$ is the G.C.M. of $(a+b)(a-b)^2 + (b+c)(b-c)^2 + (c+a)(c-a)^2$ and $(a-b)(a+b)^2 + (b-c)(b+c)^2 + (c-a)(c+a)^2$.

Find also the least common multiple of these two quantities.

3. Find the square root and the fourth root of

$$x + x^{-1} - 4\sqrt{-1}(x^{\frac{1}{2}} - x^{-\frac{1}{2}}) - 6.$$

If $x^4 + 2ax^3 + bx^2 + 2cx + d$ is a complete square, prove that

$$a = \frac{c}{\sqrt{d}} = \frac{b - 2\sqrt{d}}{a}.$$

4. Find the roots of the equation

$$ax^2 + bx + c = 0.$$

What do the roots become when (1) $a=0$;

(2) $c=0$; (3) $a=0$ and $b=0$?

Prove that a quadratic equation can have only two roots.

5. Solve the equations

$$(1) \sqrt{2x} + \sqrt{3x} = \sqrt{5}.$$

$$(2) \{(x+l)^2 - a^2\} \{(x+l)^2 - b^2\} \\ = \{(x+m)^2 - a^2\} \times \{(x+m)^2 - b^2\}$$

$$(3) \frac{1}{x-3} + \frac{3}{x+15} + \frac{1}{x+3} - \frac{5}{x+9} = 0.$$

$$(4) \left. \begin{aligned} \frac{1}{x} + \frac{1}{z} &= \frac{2}{y} \\ x + z &= \frac{1}{4y} \\ x^2 - 2yz &= \frac{1}{12} \end{aligned} \right\}$$

6. Find the sum of n terms of an arithmetical series, having given the first term and the common difference.

Find the sum of 32 terms of the *A. P.* whose 5th term is 20, and whose 21st term is 15.

7. Define a harmonic series, and shew how to insert m harmonic means between a and b .

If a , $2b$ and c be in *H. P.*, then will $a+c$, a , and $a-b$, be in *G. P.*, and also will $c+a$, c , and $c-b$.

8. Find the number of combinations of n things taken r at a time, and prove that it is the same as the number of combinations of n things taken $n-r$ at a time.

Prove that the number of combinations of $2n$ things taken n at a time is

$$2^n \cdot \frac{1 \cdot 3 \cdot 5 \dots (2n-1)}{1 \cdot 2 \cdot 3 \dots n}.$$

9. Assuming the truth of the Binomial Theorem when the index is a whole number, prove it when the index is a positive fraction.

Write down the fifth term of $(2^3 - 2)^{-n}$.

Prove that

$$\sqrt[3]{\frac{1}{6}} = \frac{1}{2} + \frac{1}{3 \cdot 2^2} + \frac{1 \cdot 4}{1 \cdot 2} \cdot \frac{1}{3^2 \cdot 2^5} + \frac{1 \cdot 4 \cdot 7}{1 \cdot 2 \cdot 3} \cdot \frac{1}{3^3 \cdot 2^7} \\ + \dots$$

10. Sum the series

$$(1) \frac{1}{\sqrt{2}} - \frac{1}{3} + \frac{\sqrt{2}}{9} - \frac{2}{27} + \dots \text{to infinity.}$$

$$(2) 3 + 6 + 11 + 20 + 27 + \dots \text{to } n \text{ terms.}$$

SOLUTIONS TO ALGEBRA—HONORS.

1. $a^2 b^2 c^2$.

$$2. (a+b)(a-b)^3 + (b+c)(b-c)^3 + (c+a)(c-a)^3 = 2(a+b+c)(a-b)(b-c)(c-a)$$

$$(a-b)(a+b)^2 + (b-c)(b+c)^2 + (c-a)(c+a)^2 = -(a-b)(b-c)(c-a)$$

$$\therefore G.C.M. = (a-b)(b-c)(c-a).$$

$$L.C.M. = 2(a+b+c)(a-b)(b-c)(c-a).$$

$$3. x - 2\sqrt{-1-x} - \frac{1}{2}; x - x\sqrt{-1}.$$

Assume $x^4 + 2ax^3 + bx^2 + 2cx + d = (x^2 + mx + n)^2$

Equating co-efficients of like powers of x
 $a = m, b = m^2 + 2n, c = mn, d = n^2; \therefore m$

$$= \frac{mn}{n} = \frac{m^2 + 2n - 2n}{m}.$$

4. Book-work.

5. (1.) $x = 25 - 10\sqrt{6}$.

(2) We have

$$\frac{(x+l)^2 - a^2}{(x+m)^2 - a^2} = \frac{(x+m)^2 - b^2}{(x+l)^2 - b^2}.$$

Subtracting 1 from each side and dividing both sides by $(x+l)^2 - (x+m)^2$ we have

$$(x+l)^2 - b^2 + (x+m)^2 - a^2 = 0.$$

$$\therefore x = \pm \frac{\sqrt{\{a^2 + b^2 - (l-m)^2\}} - l - m}{2}$$

$$(x+l)^2 - (x+m)^2 = 0 \text{ gives } x = \frac{l+m}{2}$$

(3.) $x = -\frac{3}{2}$.

$$(4.) \left. \begin{aligned} x &= \frac{1}{4} \\ y &= \frac{1}{3} \\ z &= \frac{1}{2} \end{aligned} \right\}$$

6. 525.

7. If $a, 2b, c$ be in $H. P.$, $2b = \frac{2ac}{a+c}$

$$\therefore b = \frac{ac}{a+c}$$

or, $ab + bc = ac$,

i.e., $a^2 = (a+c)(a-b)$

or, $c^2 = (c+a)(c-b)$.

$$8. \frac{|2n|}{|n|} = \frac{(1.3.5 \dots 2n-1)(2.4.6 \dots 2n)}{|n|} = 2n \cdot \frac{(1.3.5 \dots 2n-1)}{|n|} = \&c.$$

$$9. \frac{n(n+1)(n+2)(n+3)}{4} (2^3)^{-(n+4)} \cdot 2^4$$

Put $n = \frac{1}{2}$, and the second part of question follows.

$$10. (1) S = \frac{a}{1-r} = \frac{\frac{1}{\sqrt{2}}}{1 + \frac{1}{\sqrt{2}}} = \frac{3}{2 + 3\sqrt{2}}$$

$$S = (1^2 + 2) + (2^2 + 2) + (3^2 + 2) + \dots + (n^2 + 2)$$

$$= \frac{n(n+1)(2n+1)}{6} + 2n$$

PROBLEMS.

I. AD, BE are drawn at right angles to the opposite sides of the triangle ABC . Shew that the triangle CED is similar to the triangle CBA .

2. Produce a line so that twice the rectangle contained by the whole line and the part produced shall equal the square on half the given line.

3. $ABCDEF$ is a hexagon inscribed in a circle such that $AB=BC, CD=DE$, and $EF=FA$. Shew that AD, BE , and CF pass through a point and are at right angles to BF, FD , and DB respectively.

IV. In any triangle inscribe a triangle similar to a given triangle.

V. Four straight lines form four triangles: the centres of the four circumscribed circles lie on a circle which also passes through the common point of the circumscribed circles.

VI. An $A.P.$, a $G.P.$, and an $H.P.$ have each the same first and last terms, and the same number of terms (n), and the r^{th} terms are a_r, b_r, c_r ; prove that

$$a_{r+1} : b_{r+1} = b_{n-r} : c_{n-r}$$

VII. There are p suits of cards, each suit consisting of q cards numbered from 1 to q ; prove that the number of sets of cards numbered from 1 to q which can be made from all the suits is p^q .

VIII. If p be nearly equal to q ,
 $\frac{(n+1)p + (n-1)q}{(n-1)p + (n+1)q}$ is a close approximation
 to $\left(\frac{p}{q}\right)^{\frac{1}{n}}$; and if $\frac{p}{q}$ differ from 1 only in
 the $(r+1)^{\text{th}}$ decimal place, this approxima-
 tion will be correct to $2r$ places.

IX. Having given

$$yz + \frac{1}{yz} - ax - \frac{b}{x} = zx + \frac{1}{zx} - ay - \frac{b}{y} =$$

$$yx + \frac{1}{xy} - az - \frac{b}{z}$$

prove that if x, y, z be all unequal, $ab=1$,
 and each member of these equations $=0$.

10. If $\frac{ax - by}{z} = \frac{ay - bz}{x} = \frac{az - bx}{y}$ prove

that $x=y=z$.

11. Prove that

$$3^n = 1 + n \cdot 2^n + \frac{n(n-1)(n-2)}{1 \cdot 2 \cdot 3} 2^{n-2} \\ + \frac{n(n-1)(n-2)(n-3)(n-4)}{1 \cdot 2 \cdot 3 \cdot 4 \cdot 5} 2^{n-4} + \text{etc.}$$

12. If A, B, C are the angles of a triangle,
 then $\sin(A-B) \sin C + \sin(B-C) \sin A +$
 $\sin(C-A) \sin B = 0$.

13. If $\sin l = \frac{a-b}{a+b}$, $\sin m = \frac{b-c}{b+c}$, $\sin n =$

$\frac{c-a}{c+a}$, prove that $\sec^2 l + \sec^2 m + \sec^2 n =$
 $2 \sec l \sec m \sec n + 1$.

14. A started from Ottawa at 9 A.M., to
 walk to Chelsea. After he had walked $1\frac{1}{2}$
 miles, B started and overtook A half-way
 there. A then increased his pace one-fifth
 and B decreased his one-ninth, and they
 reached Chelsea together at 11:28½ A.M.
 Find the distance to Chelsea.

15. O is the point in AO perpendicular to
 the straight line ABC , from which BC ap-
 pears the longest; prove that

$$\tan CQB = \frac{BC}{2AO}$$

XVI. An object is observed at three points
 A, B, C , lying in a horizontal straight line
 which passes directly underneath the object;

30

the angles of elevation at A, B, C are $m, 2m,$
 $3m$, and $AB = a, BC = b$; prove that the
 height of the object is

$$\frac{a}{2b} \sqrt{(a+b)(3b-a)}$$

SOLUTIONS TO PROBLEMS.

VI. Let a, c , be the first and last terms
 respectively, then

$$a_r = a + (r-1) \frac{c-a}{n-1}, \quad b_r = a \left(\frac{c}{a}\right)^{\frac{r-1}{n-1}},$$

$$c_r = \frac{ac(n-1)}{c(n-1) + (r-1)(a-c)}.$$

Required to show

$$\frac{a + r \frac{c-a}{n-1}}{a \left(\frac{c}{a}\right)^{\frac{r}{n-1}}} = \frac{a \left(\frac{c}{a}\right)^{\frac{n-r-1}{n-1}}}{\frac{ac(n-1)}{c(n-1) + (n-r-1)(a-c)}}$$

$$\text{or } \frac{a(n-1) + r(c-a)}{n-1} = \frac{a \left(\frac{c}{a}\right)^{\frac{n-r-1}{n-1}}}{\frac{ac(n-1)}{a(n-1) + r(c-a)}}$$

or $ac=ac$.

VII. First take 2 cards in each suit, and
 suppose the cards arranged thus, 1 2 (1).
 then 1 in (1) may be 1 2 (2).
 taken with 2 in (1), (2) 1 2 (3).
 ... (p), thus giving p sets. Now
 take 1 in (2) and so on for each
 of the others; thus on the whole 1 2 (p).
 there are p^2 sets. Then take 3 cards in each
 suit; now the p 3's may be arranged with
 the p^2 sets in the same manner as before,
 giving p^3 sets, and so on. q cards and p sets
 taken as in question will give pq sets.

VIII. Let $\sqrt[n]{\frac{p}{q}} = 1+x$ where x is very
 small,

$$\therefore \frac{p}{q} = 1+nx \text{ nearly.}$$

$$\therefore x = \frac{\frac{p}{q} - 1}{n}$$

$$\text{also } \frac{p}{q} - 1 = nx + \frac{n(n-1)}{2} x^2 \text{ nearly.}$$

$$=x\left(n+\frac{n(n-1)}{2}\cdot\frac{p}{q}-1\right)$$

$$\therefore x = \frac{2\left(\frac{p}{q}-1\right)}{n+1+(n-1)\frac{p}{q}}$$

Hence $\sqrt[n]{\frac{p}{q}} = 1+x = \frac{n+1\frac{p}{q}+n-1q}{n+1q+n-1p}$.

Second part follows at once, $\therefore x < \frac{1}{10^r}$
and 1st term neglected is $\frac{n(n-1)}{2}x^2$.

IX. From first identity

$\left(z - \frac{1}{xyz} - \frac{b}{xy} + a\right)(y-x) = 0$ $\therefore x, y, z$ are unequal.

$$z - \frac{1}{xyz} - \frac{b}{xy} + a = 0 \quad (1)$$

similarly $x - \frac{1}{xyz} - \frac{b}{yz} + a = 0 \quad (2)$

“ $y - \frac{1}{xyz} - \frac{b}{zx} + a = 0 \quad (3)$

From (1) and (2) $b = xyz$,

$$\therefore a = \frac{1}{xyz}$$

Substituting which values each member of these = 0.

10. Each of given fractions

$$= \frac{a(x+y+z) - b(x+y+z)}{x+y+z}$$

$\therefore ax - by = ay - bz = az - bx = az - bz = ax - bx = ay - by$, whence $x = y = z$.

$$11. (2+1)^n - (2-1)^n = 2(n \cdot 2^{n-1} + \frac{n(n-1)(n-2)}{3} \cdot 2^{n-3} + \dots)$$

$$\therefore 3^n = 1^n + n \cdot 2^n + \frac{n(n-1)(n-2)}{3} 2^{n-2} + \dots$$

$$12. \text{ Since } \sin C = \sin(\pi - A + B) \\ = \sin(A + B).$$

$\therefore$ given expression becomes

$$\sin A - B \cdot \sin A + B + \dots + \dots$$

or $\sin^2 A - \sin^2 B + \sin^2 B - \sin^2 C + \sin^2 C - \sin^2 A = 0$.

$$13. \text{ We have } \sec l = \frac{a+b}{2\sqrt{ab}}, \text{ etc. = etc.}$$

Proposed identity follows immediately.

14. Let x = distance from O. to C.

y = A's rate per hour.

z = B's rate per hour.

$$\frac{x}{y} + \frac{x}{6y} = \frac{99}{40} \quad (1)$$

$$\therefore x = \frac{27}{10}y$$

$$y + \frac{y}{5} = z - \frac{z}{9}$$

$$\therefore z = \frac{27}{20}y$$

$$\frac{\frac{27}{20}y - 1\frac{1}{2}}{y} = \frac{\frac{27}{20}y}{z}$$

$$\therefore y = \frac{20}{6}$$

$$\therefore x = 9$$

$\therefore$ 9 mls. dist. from O. to C.

15. The pt. O where circle passing through B, C, touches AO is pt. where BC subtends the greatest angle, i.e. where BC appears longest.

$$\tan COB = \tan(AOC - AOB)$$

$$= \frac{\tan AOC - \tan AOB}{1 + \tan AOC \cdot \tan AOB}$$

$$= \frac{AC - AB}{AO} \\ = \frac{AO^2 + AC \cdot AB}{AO^2} \\ = \frac{BC}{2AO}$$

$$\therefore AO^2 = AC \cdot AB.$$

16. Let P be the object, PD its height = x suppose.

Let CD = z.

$$\tan m = \frac{x}{a+b+z} \quad (1)$$

$$\tan 2m = \frac{x}{b+z} \quad (2)$$

$$\tan 3m = \frac{x}{z} \quad (3)$$

$$\therefore x = (a+b+z) \tan m \quad (4)$$

$$= (b+z) \frac{2 \tan m}{1 - \tan^2 m} \quad (5)$$

$$= z \frac{3 \tan m - \tan^3 m}{1 - 3 \tan^2 m} \quad (6)$$

Equating values of $\tan^2 m$ we find

$$z = \frac{a^2 - ab - 2b^2}{2b}.$$

From right-angled triangle BPD ,

$$a^2 - (b+z)^2 = x^2,$$

$$\therefore x = \frac{a}{2b} \sqrt{\{(a+b)(3b-a)\}}.$$

ENGLISH.

(Candidates in Arts will omit questions 1, 2, 14 and 15. Candidates in Law will omit 3, 4, 5, 14 and 15. Candidates in Medicine will omit 1, 2, 3, 4 and 5.)

Write a composition, not exceeding 50 lines in length, upon any one of the following subjects:

(a) "The Zulu War."

(b) "All the world's a stage, and all the men and women merely actors."

(c) "'Tis only noble to be good."

(d) "The water system of Canada."

1. Brief sketches of the life and writings of Sir Francis Bacon, Beaumont, Fletcher, Lyly, Ben Jonson, Burton.

2. Point out clearly the distinctive traits of the literature of the Elizabethan period, shewing how it was affected by the domestic and foreign relations of England.

3. Give a short history of Milton, naming his chief prose and poetical works.

4. Brief notes on: Ascalon, Oreb, Titan, Delphian Cliff, Dodona, Aspramont, Lemnos, Taurus, Alcairo, Panim, Sovran, Echa-lia, Acheron.

5. "Let such bethink them, if the sleepy drench,
Of that forgetful lake benumb not still,
That in our proper motion we ascend
Up to our native rest—descent and fall
To us is adverse. Who but felt of late,
When the fierce foe hung on our broken rear
Insulting, and pursued us through the deep,
With what compulsion and laborious flight
We sunk thus low?"

(a) Rewrite in prose.

(b) Parse italicized words.

(c) Analyse the passage.

6. Trace briefly the formation of the English language from the Anglo-Saxon, shewing the causes which brought about the change.

7. Write a brief paper upon the English possessive case; its origin, form, etc.

8. Classify pronouns in English, and name the class (or classes) to which the following belong: *mine, either, what, none*.

9. Distinguish clearly between poetry and prose; and explain the nature of the following metres: iambic hexameter, dactylic, trimeter.

10. Name two English words from each of the following languages: Greek, Dutch, Chinese, Arabic, French, Italian, Persian.

11. Write brief notes upon: hybrids, Celtic language, permutation of letters, accent, orthoepy, patronymics, augmentatives.

12. Brief notes upon the grammatical and etymological peculiarities of: *was, many a, a hunting, thither, till, to wit, myself, twelve, double, further, spinster, none*.

13. Parse italicized words in the following:
This being mine.

Ah me! I have lost what you yourself gave me.

14. "Vice is a monster of such frightful mien,
That to be hated, needs but to be seen;
But seen too oft, familiar with its face,
We first endure, then pity, then embrace."

Analyse fully.

15. "English Grammar is more regular and less complex than the grammar of most languages." Criticise, explain, and illustrate.

EDUCATION DEPARTMENT, ONTARIO.

July Examinations, 1879.

FIRST-CLASS TEACHERS.

ENGLISH GRAMMAR AND ETY- MOLOGY.

1. "*King Richard*—
He is our cousin, cousin; but 'tis doubt,
When time shall call him home from banishment,
Whether our kinsman come to see his friends.
Ourselves, and Bushy, Bagot here, and Green,
Observ'd his courtship to the common people;
How he did seem to dive into their hearts
With humble and familiar courtesy;
What reverence he did throw away on slaves;
 wooing poor craftsmen with the craft of smiles,

And patient underbearing of his fortune, 10
 As 'twere to banish their affects with him.
 Off goes his bonnet to an oyster-wench ;
 A brace of draymen bid God speed him well,
 And had the tribute of his supple knee.
 With—'Thanks, my countrymen, my loving
 friends.' 15

As were our England in reversion his,
 And he our subjects' next degree in hope.

Green—

Well, he is gone ; and with him go these thoughts.
 Now for the rebels which stand out in Ireland.—
 Expedient manage must be made, my liege, 20
 Ere farther leisure yield them farther means,
 For their advantage, and your highness' loss.

King Richard—

We will ourself in person to this war ;
 And, for our coffers—with too great a court,
 And liberal largess,—are grown somewhat light, 25
 We are enforc'd to farm our royal realm ;
 The revenue whereof shall furnish us
 For our affairs in hand. If that come short,
 Our substitutes at home shall have blank charters ;
 Whereto, when they shall know what men are
 rich, 30
 They shall subscribe them for large sums of gold,
 And send them after to supply our wants ;
 For we will make for Ireland presently."

—Shakespeare ; King Richard II.

(a) Explain the meaning of "whether... friends;" "what reverence..slaves;" "patient underbearing...with him;" "as were our England...in hope;" "expedient manage;" "farm...realm."

(b) Give the derivation of "banishment," "courtship," "liege," "realm," "blank," "person," "supple."

(c) Comment briefly on the following :—"ourselves" (l. 4) ; "for" (l. 24) ; "make" (l. 33) ; "presently" (l. 33) ; the pronouns in ll. 30 and 31.

(d) Point out and explain any figures of speech that occur in the extract.

(e) Parse "here" (l. 4), "go" (l. 18), "yield" (l. 21), "underbearing" (l. 10).

(f) Scan ll. 7, 10, 25, noticing any peculiarities of metre.

(g) What archaisms are in the extract ?

2. Parse the italicized words in the following :

"The enemy were nine *hundred* strong."

"Some of the characters *were found fault with*."

"The soldier did not care a *bit* for the honour."

"None of these rogues and cowards, *but* Ajax is their fool."

"Jesters do oft prove *prophets*."

"I am a fool to *weep* at *what* I am glad of."

3. Analyse :

"It appeareth in nothing more, that atheism is rather in the lip than in the heart of man, than by this, that atheists will ever be talking of that their opinion, as if they fainted in it themselves, and would be glad to be strengthened by the consent of others ; nay, more, you shall have atheists strive to get disciples, as it fareth with other sects ; and, which is most of all, you shall have them that will suffer for atheism, and not recant : whereas, if they did truly think that there were no such thing as God, why should they trouble themselves ?"

4. Explain, with examples, the various uses of the Subjunctive Mood, in English.

5. Distinguish the functions of the preposition and the conjunction. Classify conjunctions, and give an example of each class.

6. Distinguish the uses of *as* and *so* in these sentences :

Strong as he now appears, he is not really so.

"So I were out of prison and kept sheep, I should be as merry as the day is long."

He was not so successful as a statesman as he was as a soldier.

As for me, I will have nothing to do with it.

7. Correct or justify the following :

(a) A verb must agree with its nominative in number and person.

(b) "Gedaliah, who, with his brethren and son, were twelve."

(c) That is the man who we suspect is the culprit.

(d) I will give it to whomsoever needs it.

(e) Much depends on a pupil composing frequently.

(f) In no case are writers so apt to err as in the position of the word *only*.

8. Write a list of French words which have become naturalized in English, and indicate their pronunciation as nearly as you can.

9. Give the derivation of anodyne, hermit, assassin, halcyon, stoic, solecism, viscount, cardinal, sycophant, spinster.

10. Distinguish revenge and vengeance, genius and talent, safety and security, imagination and fancy, anger and indignation.

11. Write a concise account of the place of the Anglo-Saxon element in the English language.

PHYSICS.

N.B.—*One hundred and fifty marks to count a full paper.*

1. Explain what is meant by "Temperature of a body," "Quantity of heat," "Quality of heat,"

2. Describe the process of graduating a mercury thermometer, and explain why a mercury and an air thermometer that agree at 0° and at 100° , will not exactly agree at either 50° or 250° . What corrections is it necessary to apply to the readings of a mercury thermometer in order to get the true temperature?

If the co-efficient of absolute expansion of mercury be .00018, and the co-efficient of linear expansion of glass be .0000089, find the co-efficient of apparent expansion of mercury in a thermometer.

3. What is meant by the co-efficient of expansion of a gas? The co-efficients of expansion of all gases are nearly the same. How may this be accounted for? Give examples of divergence from the general rule, and account for the divergence.

4. What is meant by "latent heat?" Describe a method of determining the latent heat of vaporization of alcohol. How is latent heat explained in the dynamical theory of heat?

5. How can it be shown that radiant heat passes through dry air and some other substances without sensibly raising their temperature? In the sun's rays are both heat rays and light rays. How can the latter be completely intercepted while the former are allowed to pass?

6. "Why do the rays of the sun, after passing through a hole of any shape, triangular for instance, or even a mere straight slit, if intercepted at a certain distance, always form a circle?"

7. State the laws of reflection of light. Describe the kaleidoscope and explain its action.

Two candles are placed in front of a concave spherical mirror of one foot radius, one candle being at a distance of five inches from the mirror, the other at a distance of seven inches from it. What distance apart will the images of the candles appear to an eye situated exactly in the axis of the mirror?

8. State the laws of the refraction of light. Explain why it is that a double concave air-lens, plunged into water, produces an image like that produced in air by a double convex water-lens. (Illustrate your explanation by a diagram.)

9. Looking vertically downwards into water, it seems shallower than it really is; why is this?

A short-sighted person who is not capable of seeing anything distinctly beyond five inches, is able to see distinctly a small object distant $5\frac{1}{4}$ inches, through a pane of glass whose refractive index is $\frac{3}{2}$: find the thickness of the glass.

10. What is meant by the polarization of light, and how is it explained by the undulatory theory? What is the cause of the blue colour of a clear sky, and why is the diffused light around the north pole of the heavens polarized?

11. Briefly describe a series of experiments to prove the following laws:—

(i.) There is no electrical force within a closed electrified conductor. (Mention two exceptions to this law.)

(ii.) When a separation of electricities takes place by friction or any other means, the amounts of positive and negative electricities produced are always such that, on being reunited, they exactly neutralize each other.

(iii.) The amount of opposite electricity induced on surrounding conductors by any electrified body is equal to the body's own charge.

(iv.) If two bodies be electrified and placed at a constant distance (great compared with their dimensions), from each other, they exert on each other a force proportional to the products of the amounts of electricity they contain. This force is attractive if their electrification be opposite, repulsive if similar.

(v.) If constant charges of electricity be condensed at two points, and the distance between them varied, the force of attraction or repulsion is found to vary inversely as the square of the distance.

12. Describe the Daniell's cell, and state its respective advantages and disadvantages. How is it proved that the electricity produced by a galvanic battery is the same in kind as that produced by friction? Explain the relation between them, illustrating your answer by examples of the effects they produce.

13. Twelve cells of a battery, consisting of zinc and carbon in dilute sulphuric acid are joined up in series, and the current is sent through a voltmeter containing acidulated water, and through a solution of cupric-sulphate; what are the laws of decomposition by the current both within and without the cells of the battery? If the resistance of the voltmeter and cupric-sulphate solution be equal to three cells of the battery, what arrangement of the cells of the battery will produce the greatest amount of decomposition in a given time?

14. Define electromotive force.

Find the current-strength when n cells each of resistance r and the electromotive force E are arranged (i.) in simple circuit; (ii.) in compound circuit.

Find the current-strength due to mn cells arranged in m rows of n cells, the cells in each row being in compound circuit, and the successive rows in simple circuit.

Find the current-strength and the whole resistance in any divided circuit.

NATURAL PHILOSOPHY.

N.B.—Forty marks to each question; 225 marks to count a full paper.

1. Deduce the parallelogram of forces from the principle of virtual velocities. (Virtual Work.)

At the point O of intersection of diagonals of a square $ABCD$, two forces of 8 ounces and 12 ounces respectively act along the semi-diagonals OA , OB , and two forces of 10 ounces and 2 ounces respectively act in a direction perpendicular to the sides AB and

BD , and towards those sides: required the magnitude of the resultant.

2. If two forces acting at a point O be represented in magnitude and direction by OB and $n.OA$, their resultant will be represented in magnitude and direction by $(n+1).OG$, the point G being taken on AB so that $BG = n.AG$.

If n forces acting at a point O be represented in magnitude and direction by OP_1 , OP_2 , OP_3 , ... OP_n , their resultant will be represented in magnitude and direction by $n. OG$, the point G being the centre of gravity of particles of equal mass placed at the points P_1 , P_2 , P_3 , ... P_n .

3. The sum of the moments of two forces with respect to any point in their plane, is equal to the moment of their resultant with respect to the same point.

A beam AB , 15 ft. long and weighing 25 lbs., rests against a smooth horizontal plane CA and a smooth vertical wall CB , the lower extremity A being attached to a string which passes over a smooth pulley at C and sustains a weight of 40 lbs. Find the length of the string between C and A when the beam is in equilibrium, the centre of weight of the beam being 7 ft. from the extremity A .

4. Given the centres of gravity of a body and of any part of it, show how to find the centre of gravity of the remainder.

From a rectangle six inches wide there is cut an isosceles triangle, having one of the longer sides of the rectangle for its base, the centre of gravity of the remaining piece of the rectangle is at the summit of the triangle; find the height of the triangle.

5. State the rule for the composition of velocities, and give an instance showing the truth of the rule.

Explain how a body can be made to describe the sides of a regular polygon with constant velocity by having a certain velocity impressed on it at each angular point; and calculate the magnitude of the velocity impressed on a body at each angular point of an octagon which the body describes with a constant velocity of two feet per second.

6. State Newton's laws of motion, and ex-

plain the bearing of the second law upon the definition of force.

Equal weights, *A* and *B*, are attached to the ends of a perfectly flexible, weightless string, which passes over a perfectly smooth pulley *C*. The weight *B* hangs vertically, and the weight *A* rests on a plane *AC*, inclined at 30° to the horizon, the co-efficient of friction between *A* and the plane being $\frac{1}{3}$. Find the tension of the string and the space passed over by *A* in two seconds from rest. (The part of the string between *A* and *C* is parallel to the plane.)

7. Describe the common hydrometer, and state the principles of its action.

A vessel floats in water with half of its volume below the surface-level. Two cubic inches of oil of turpentine, weighing exactly one ounce, are poured into the vessel, which now sinks until two-thirds of its volume is below the surface-level of the water. Find the volume of the vessel. (A cubic foot of water weighs 1000 oz.)

PHYSIOLOGY.

1. (a) Describe the structure of the Eye.
(b) State the function of each part.
(c) Give the most important rules for the preservation of the sight.

(d) How should the light be admitted to a school-room?

(e) How can a teacher prevent the too rapid development of *myopia* in his pupils?

2. Give rules for the guidance of your pupils in taking a daily bath.

3. What steps should be taken to prevent the spread of contagious diseases?

4. (a) Describe the process of digestion.

(b) Show why it is wrong:

(i.) To work soon after eating.

(ii.) To study soon after eating.

(iii.) To eat or drink what is hot.

5. Give rules for the preservation of the proper tone of the nervous system.

SECOND-CLASS TEACHERS AND INTER-MEDIATE.

ENGLISH HISTORY.

1. Derive and explain the terms "vil-

lain," "sheriff," "confiscation," "homage," "knights templars."

2. State the chief differences between the Saxon and the Normal rule in England with respect to (i.) the government of the country; (ii.) the condition of the people.

3. Mention the chief clauses of the Magna Charta.

4. Tell the principal events of the reign of Edward I.

5. Write concise historical explanatory notes on the Restoration, the battle of Culloden, the declaration of American Independence, the Corn Laws, the Crimean War.

6. Tell briefly the part played in English history by Thomas Cromwell, John Hampden, Charles James Fox, John Wilkes.

7. "The Queen reigns, but does not govern." Discuss this statement.

8. Say what you know about Lord Sydenham's administration in Canada.

9. What led the Romans to interfere in the affairs of Macedonia, and by what steps did Macedonia become a Roman Province?

10. Give a brief account of the "Social War" in Italy.

ENGLISH LITERATURE.

1. State Milton's conception of the universe, as presented in *Paradise Lost*.

2. Give a brief synopsis of Book I., and explain the position of affairs at the time at which Book II begins.

3. Quote the descriptions of Death, Belial, Beëlzebub, and Lethe, and the simile of the Gryphon.

4.
"Before their eyes in sudden view appear 890
The secrets of the hoary Deep, a dark
Illimitable ocean, without bound,
Without dimensions, where length, breadth, and
height,
And time, and place are lost; where eldest Night
And Chaos, ancestors of Nature, hold 895
Eternal anarchy amidst the noise
Of endless wars, and by confusion stand;
For 'Hot, Cold, Moist, and Dry, four champions
fierce,
Strive here for mast'ry, and to battle bring
Their embryon atoms; they around the flag 900

Of each his faction, in their several clans,
 Light-arm'd or heavy, sharp, smooth, swift, or slow,
 Swarm populous, unnumber'd as the sands
 Of Barca or Cyrene's torrid soil,
 Levied to side with warring winds, and poise 905
 Their lighter wings. To whom these most adhere,
 He rules a moment; Chaos umpire sits,
 And by decision more embroils the fray
 By which he reigns; next him high arbiter
 Chance governs all."

910

—Milton—Paradise Lost, Book II.

- (i.) *Their* (l. 890). Whose?
- (ii.) *Ancestors of Nature*. Explain the allusion.
- (iii.) *By confusion stand*. Explain.
- (iv.) To what ancient philosophic theory is there an allusion in ll. 898-900?
- (v.) *They* (l. 900). Who?
- (vi.) Where were Barca and Cyrene?
- (vii.) Parse "*levied*" (l. 905). Explain the meaning of "*poise*."
- (viii.) *Their* (l. 906). Whose?
- (ix.) Explain the construction and meaning of "*To whom these most adhere, He rules a moment*."
- (x.) Who is called "*high arbiter*" in l. 909?
- (xi.) Point out any peculiarities of Milton's genius illustrated by this passage.
- (xii.) Scan ll. 892, 893, 900, 901, 905.

5. Write an account of Milton's life.

6. Briefly state anything you know with respect to the influence of the Puritan Revolution upon literature.

7. Give the propositions made by Moloch, Belial, Mammon and Beelzebub at the council. Who utters these words:

"Who shall tempt with wand'ring feet,
 The dark, unbottom'd, infinite abyss?"
 Give the part of his speech which follows.

BOOK-KEEPING.

1. Toms has \$500 in Ontario bank, and wishes to draw it by check, to be given to-day in Toronto. Write check.

2. Smith gives Jones his note at 3 months from to-day for \$125. Write note, with amount of stamp required.

3. Brown of Toronto draws, to-day, a sight draft for \$75, on Wilson of Whitby. Write draft.

4. Journalize each of the above transactions, giving the entry for each person interested.

5. A merchant in Cobourg wishes to send through the Bank a sum of money to a merchant in Toronto; explain how this may be done, in two ways, without expense to the Toronto merchant.

6. John Wilson bought from R. Henry of Oshawa, March 14th, 1878, 12 yds. cotton @ 15c. per yd., 6½ lbs. tea @ 90c. per lb., 285 lbs. flour @ \$2.50 per cwt., and a suit of clothes \$15. Make out bill in proper form and receipt it.

7. Journalize the following, giving my entries:

(a) I buy 200 bbls. flour from Scott at \$6 per bbl., pay \$500 in cash, give my note for \$300, balance to remain on account.

(b) Scott buys from me 200 yds. broad-cloth @ \$2.50 per yd., pays \$500 in cash, gives his note for \$300, balance paid by an order on Hoskin, which Hoskin accepts.

(c) Scott and I exchange notes.

8. In making out your statements preparatory to closing your Ledger, where do the following items appear: Mdse. on hand, Cash, Money in Bank, Bills Rec., Coal for use of Store, Balance of Interest, Any Real Estate?

GEOGRAPHY.

1. Define Equinox, Steppes, Great Circle, and Isothermal lines.

2. What is the form of the earth's orbit? How do you account for the warmth of Summer in our hemisphere, although the earth is farther from the sun than it is in Winter?

3. In what country, or countries, would you be most likely to find the giraffe, the ostrich, the condor, the reindeer, the chamois?

4. Outline the west coast of North America, indicating the islands near the coast, the rivers emptying into the Pacific Ocean, and the principal cities or towns on the seaboard?

5. Name the States bordering on the lakes between Canada and the United States, and mention at least two cities in each.

6. Name six rivers in Asia running south, also the waters into which they empty.

7. Over what railroads, and through what large towns or cities would you pass on a trip from Ottawa to Barrie?

8. Where and what are Sitka, Cobequid, Lepanto, Cayenne, Socotra, Aral, Kertch, Wight, St. Louis, Canso, Tweed and Chudleigh?

THIRD-CLASS TEACHERS.

ENGLISH LITERATURE.

1. Give an account of the proposals of the doctor in the Academy of Lagado.

2. Tell what you know about the Earl of Chesterfield, and explain the cause of Dr. Johnson's quarrel with him.

3. Quote Hamlet's soliloquy on death.

4. Of what does Shakespeare say:—

"It is twice blessed:
It blesseth him that gives and him that takes."

5.

"I passed, methought, the melancholy flood
With that grim ferryman which poets write of,
Unto the kingdom of perpetual night.
The first that there did greet my stranger soul
Was my great father-in-law, renowned Warwick,
Who cried aloud,—'What scourge for perjury
Can this dark monarchy afford false Clarence?'
And so he vanished; then came wandering by
A shadow like an angel, with bright hair
Dabbled in blood; and he shrieked out aloud,—
'Clarence is come,—false, fleeting, perjured Clarence,—
That stabbed me in the field by Tewkesbury;—
Seize on him, Furies, take him unto torment!'"

—Shakespeare—King Richard III.

(i) Name "the melancholy flood," "the grim ferryman," "the kingdom of perpetual night," "the shadow like an angel."

(ii.) *Stranger* l. 4. In what degree of comparison?

(iii.) Explain the historical allusions.

(iv.) *Which* l. 2. Account for the use of this word here.

(v.) *Furies*. Describe the Greek Furies.

(vi.) Scan ll. 1 and 2.

6. Explain, after Trench, the derivation of "diaper," "cherry," and "thrall;" and give an example of an exploded theory which has left traces in the language.

7. Reproduce the substance of Johnson's comparison of Dryden and Pope.

8.

"And wild and high the 'Cameron's gathering' rose,
The war-note of Lochiel, which Albyn's hills
Have heard and heard too have her Saxon foes

How in the noon of night her pibroch thrills
Savage and shrill but with the breath that fills
Their mountain pipe, so fill the mountaineers
With the fierce native daring that instils
The stirring memory of a thousand years,
And Evan's, Donald's, fame rings in each clans-
man's ears!"

(i.) Explain the meaning of "pibroch," "noon of night," "Albyn," "Lochiel."

(ii.) Should there be a full stop at the end of line 3, or does the sense run on to the middle of line 5? Give reasons for your answer. Punctuate ll. 3, 4, and 5.

(iii.) Parse "instils," l. 7.

(iv.) What is the name of the stanza, and what is the long line at the end of it called?

(v.) Quote the next stanza.

(vi.) Name the author, and tell what you know about him.

HISTORY.

1. Describe the feudal system; state the causes which produced it, and those which led to its decay.

2. Tell what you know about the history and present constitution of the English Parliament under the following heads:—

i. Its origin.

ii. The growth of the power of the House of Commons.

iii. The duration of a parliament.

iv. The election of members.

3. Sketch the history of the reign of Queen Elizabeth.

4. Give an account of the conquest of Canada by the English.

5. Give a brief account of the American Revolution, and state clearly the principle asserted by the colonists.

6. Tell what you know about the origin of the Steamboat, the Railroad, the Electric Telegraph.

7. Write brief historical notes on Lollard, Transubstantiation, Puritan, Independent, Dissenter, and explain the meaning of the terms.

GEOGRAPHY.

1. Define the Earth's Axis, and explain why we have changes in seasons.

2. Give the width of the zones in degrees, and the names of the circles bounding them.

3. What is the highest latitude possible? The highest longitude? Why is there a difference in the two cases?

4. (a) Describe the position of the Dominion of Canada. (b) Of what does it consist? (c) What is its population?

(d) How many provinces as large as Ontario might be formed in the Dominion?

(e) Name the Capital of the Dominion; the largest and the oldest city in it.

5. (a) What was the population of Ontario at the time of the last census?

(b) Name its chief productions?

(c) Name its chief minerals?

(d) Name all its cities?

(e) Name its railroads giving their termini?

6. Name the principal rivers of Europe, and one city on the bank of each.

7. Sketch Asia, showing its countries, five seas, three peninsulas, four gulfs, and the rivers running South.

8. Where and what are Aden, Father Point, Khyber Pass, Natal, Melbourne, Falkland, Sydney, Zambesi, Medina, Sedan, Gothland, Valparaiso, Ortegall, Guayaquil, Como, Havana, and Onega.

ALGEBRA.—SOLUTIONS.

SECOND CLASS.

1. Given expression

$$= \left(\frac{a(x^2 - y^2) + 2bxy}{x^2 + y^2} \right)^2 + \left(\frac{-b(x^2 - y^2) + 2axy}{x^2 + y^2} \right)^2$$

$$= \frac{(a^2 + b^2)(x^2 - y^2)^2 + 4xy(a^2 + b^2)(x^2 + y^2)}{(x^2 + y^2)^2}$$

$$= (a^2 + b^2).$$

2. Quotient $= a^2 + ab + b^2 + ac - bc + c^2$.
Apply preceding, putting $a = 1 + x + x^2$, $b = 1 - x + x^2$, $c = 2x$.

$$3. x^4 + y^4 - \frac{1}{2}x^2y^2 = (x^2 + y^2)^2 - \frac{1}{2}x^2y^2 =$$

$$(x^2 + y^2 + \frac{1}{2}xy)(x^2 + y^2 - \frac{1}{2}xy). (7x + 6y - 9)$$

$$(x - y + 4) = 7x^2 - 6y^2 - xy + 19x + 33y - 36.$$

$$4. -99 \left| \begin{array}{cccc} 5 & 497 & 200 & 196 & -218 \\ -495 & -198 & -198 & 198 & 1980 \end{array} \right| - 2000$$

$$5 + 2 \quad + 2 \quad - 2 \quad - 20 \quad | \quad - 20$$

$$\therefore -20 = \text{value.}$$

$$\begin{array}{r|rr} -\frac{3}{2} & 6+5-17-6 & +10-2 \\ +\frac{1}{2} & -9+6+12 & -6 \\ & +3-2 & -4+2 \\ \hline & 6-4-8+4 & 0 \\ & \therefore 0 = \text{value.} \end{array}$$

5. Rationalizing, expression becomes

$$\frac{a + \sqrt{a^2 - x^2}}{x} = \frac{1}{b}$$

$$6. \frac{1}{a} + \frac{a}{1+a} > 1, \text{ if } 1+a+a^2 > a+a^2, \text{ if } 1 > 0.$$

$$\frac{a+b}{b} > \frac{b+a}{a} > 2, \text{ if } (a-b)^2 \text{ is } +ve.$$

$$7. (1) \left. \begin{array}{l} x=4 \text{ or } 9 \\ y=9 \text{ or } 4 \end{array} \right\} \quad \left. \begin{array}{l} 2. x=1 \\ y=2 \\ z=3 \end{array} \right\}$$

(3) $(x^2 + 7x + 6)(x^2 + 7x + 12) = 16$, forming a quadratic in $(x^2 + 7x)$. Solving this $= n$, we have

$$x = \frac{-7 \pm \sqrt{33}}{2} \text{ or } \frac{-7 \pm \sqrt{-7}}{2}.$$

8. Let $x-1$, x , $x+1$ be the numbers
 $(x-1)^3 + x^3 + (x+1)^3 = 16\frac{2}{3}x(x+1)$,
whence $x=0$, 6 or $-\frac{1}{3}$: numbers are therefore -1 , 0, 1, etc.

9. (1) Roots, such as those given in the question, enter equations in pairs: let the equation composed of the remaining roots be represented by the symbol $f(x)=0$: the equation will be $x(x-\sqrt{-3})(x+\sqrt{-3})$

$(x-1+\sqrt{2})(x+1-\sqrt{2})f(x)=0$,
or $x(x^2+3)(x^2-2x-1)f(x)=0$.
The coefficients of the equation are assumed to be rational and real.

(2) $\sqrt{pq}$ is a mean proportional between p and q , and therefore, by the question, is a root; by substitution we obtain $pq + p\sqrt{pq} + q = 0$, or $q(p+1)^2 = p^3$.

10. Let x = number of miles train moving from A goes per hour; let y = number of miles train moving from B goes per hour.
Whole distance $= \frac{1}{2}(x+y)$:

$$\text{time for first train} = \frac{\frac{1}{2}(x+y)}{x},$$

$$= \text{second train's time} + 52\frac{1}{2}$$

$$= \frac{\frac{1}{2}(x+y)}{y} + \frac{1}{2}h.$$

By simplifying we have $\frac{y^2}{x^2} - \frac{7}{12}\frac{y}{x} = 1$, or

$$\frac{y}{x} = \frac{4}{3}.$$

ARITHMETIC.—SOLUTIONS.

SECOND CLASS.

1. (a) $6\cdot62\bar{2}$; (b) $31830\ldots$; =
2. L. C. M. of two quantities = product of two quantities divided by their G. C. M.
 $\therefore$ other number $= 34\frac{1}{2} \div \frac{2\frac{1}{2}}{1\frac{3}{10}} = \frac{3}{2}$.
3. $\$220\cdot31125$.
4. $\frac{231 \times .000016386 \times 157}{4541\cdot02} = 131$ nearly, =
 No. of imperial gallons.
5. When 11 hrs. 35 min. are gained by the clock in advance, the same time will be indicated; this will take place in $\frac{695}{7}$ days, since 11 hrs. 35 min. = 695 min., and 7 min. are gained each day.
6. Let 1 be original stock,
 then $\frac{83}{80} = \$16,600$, $\therefore 1 = \$16,000$.
7. 1st company $= \frac{548}{15}$ women.
 2nd “ $= \frac{178}{5}$ “
 $\left. \begin{array}{l} 6 : 8 \\ 548 : 178 \end{array} \right\} \therefore \frac{411}{2} : \text{amt. by 2nd company.}$
 $\therefore \$267 = \text{amount.}$
8. $\frac{1}{10}$ of $84600 = 75600 = \text{grs. pure silver in}$
 12 lbs. Avoir.
 $= 201600 \text{ grs. alloy (in value)}$
 $\therefore$ if $210000 \text{ grs. alloy} = \$175$
 $\frac{5760}{201600} = \$4.80$.
9. Let 1 be invoice price.
 Per question $\frac{1}{4} = \frac{3}{8} + \frac{3}{8}$ of $\$125$.
 $\therefore 1 = \$700$.
10. (1) $\frac{(34\frac{1}{2} \times 20\frac{3}{4}) - (4 \times 4\frac{1}{8} + 12 \times 3\frac{1}{8})}{9}$
 $= \frac{713 - \frac{166}{3}}{9} = 73\frac{2}{9}$.
 = number of yds. painting.
- (2) radius of inner circle $= \frac{7}{2}$ feet.
 “ outer “ $= \frac{7}{8}$ “
 $\therefore$ Number of cubic feet in cylinder
 $= \pi \left\{ \left(\frac{7}{2}\right)^2 - \left(\frac{7}{8}\right)^2 \right\} 18$.
 $= 24\frac{1}{10}$.

ARITHMETIC.—SOLUTIONS.

FIRST CLASS.

1. $\sqrt[3]{\frac{70}{100000}} + \sqrt[3]{\frac{14}{100000}} = \sqrt[3]{\frac{84}{100000}}$
 $\therefore .031578 \cdot \sqrt[3]{\frac{30}{100}} + \sqrt[3]{\frac{2}{100}} = \sqrt[3]{\frac{28}{100}}$
 $= \frac{3}{10} = .3$.
2. $A + B + C$ fill $\frac{1299}{12}$ gals. in $2\frac{1}{2}'$.
 $A + B + C$ fill as much as 3 times what B would fill alone + 2 gals. in $2\frac{1}{2}'$;
 $\therefore B$ fills $\frac{1299 - 24}{12 \times 3} \times \frac{2}{5}$ gals. in $1' = 14\frac{1}{3}$;
 $A, 18\frac{1}{3}$; $C, 10\frac{2}{3}$.
3. Amount pure gold in
 $1 \text{ sov. (lbs. Troy)} = \frac{11}{12} \times \frac{40}{1869}$.
 $1 \text{ franc “} = \frac{2\cdot2072}{155 \times 20} \times \frac{7000}{5760} \times \frac{9}{10}$.
 Number of francs in 1 sovereign
 $= \frac{11}{12} \times \frac{40}{1869} \times \frac{20 \times 155}{2\cdot2072} \times \frac{5760}{7000} \times \frac{10}{9} = 25\cdot192$.
4. A gets for management
 $\$ \frac{15}{200} \times \frac{10}{12} \times \frac{4000}{1} + \$ \frac{15}{100} \times \frac{2}{12} \times \frac{4000}{1} = \$350$.
 A 's whole capital is to $\$66000$ inv. for 1 mo.
 B 's “ “ “ $\$58000$ “ “ ;
 $\therefore A$'s share will be
 $\$350 + \$ \frac{66}{124} \times \frac{85}{100} \times \frac{4000}{1} = \$2159\cdot67\frac{2}{3}$.
 $\therefore B$'s share will be $\$4000 - \$2159\cdot67\frac{2}{3}$
 $= \$1840\cdot32\frac{1}{3}$.
5. $\text{Log } .0000025 = \log \frac{1}{400000} = \log 1$
 $- (2 \log 2 + 5 \log 10) = (0 - .60206 - 5)$
 $= -6.39794$.
 $1000 = 100(1.08)^x$
 $\log 108 = 3 \log 3 + 2 \log 2 = .60206 + 1.4213639$
 $= 2.0332439$, $\therefore \log 1.08 = .0334239$.
 $\log 100 = n(\log 1.08)$
 $1 = n(.0334239)$
 $n = 29.92+$
 $\therefore$ Amount will exceed $\$1000$ in 30 years.
6. $9(\text{cash pr.}) = 8(\text{credit pr.}) = 9 \times \frac{1}{3}(\text{cost pr.})$
 $8 \text{ “} = 12 \text{ “}$
 credit price $= \frac{2}{3}$ cost price.
 $\therefore$ credit price is 50 per cent. above cost.

7. 19(volume of gold)+2.5(do. of quartz)
=7(volume of gold+volume of quartz).

12(volume of gold)= $\frac{1}{3}$ (volume of quartz).

$\therefore$ volume of gold= $\frac{1}{3}$ of whole volume.

c. in.
 $\frac{1}{3} \times \frac{1}{10} \times \frac{1}{10} \times 19 = \text{wt. of gold in 1 oz. mixture.}$

8. At the time the goods are sold the man
has really paid $\frac{100}{102} \times \frac{520}{1}$ for them, which

is present worth of \$520 due 3 months hence

at 8%. He sells them for $\frac{467}{400} \times \frac{100}{102} \times \frac{520}{1}$.

Now, for what term must this sum be put out
at interest to equal \$677.70?

Answer.

$$\frac{\$677.70 - \$\frac{467}{400} \times \frac{100}{102} \times \frac{520}{1}}{\frac{467}{400} \times \frac{100}{102} \times \frac{\$520}{1}} = 13 + \text{years.}$$

$$9. \frac{\text{percentage} \times 6000}{100} \times \frac{1}{1} = 60 \times \text{percentage} =$$

1st charge. Now, for the 2nd commission
he gets $\frac{1}{3}$ of 2nd price, which equals $\frac{1}{3}$ of
(6000 - 60 × percentage), since $\frac{1}{3} \times \frac{2}{3} = \frac{2}{9} = \frac{1}{3} \times 1$
 $60 \times \text{percentage} + \frac{1}{3} (6000 - 60 \times \text{percentage})$
 $= 3750$. Whence percentage

$$= \frac{3750 \times 5}{25 \times 60} = \frac{5}{2} = 2\frac{1}{2}. \quad \text{Ans. } 2\frac{1}{2}\%.$$

$$10. (i.) \frac{112\frac{1}{2}}{360} \times \frac{22}{7} \times \frac{6400}{1} = 6285\frac{1}{2} \text{ sq. yds.};$$

$$\frac{112\frac{1}{2}}{360} \times \frac{22}{7} \times \frac{160}{1} = 157\frac{1}{2} \text{ yds.}$$

(ii.) A rectangle can easily be formed, by
dropping a perpendicular from one of the
angles of the quadrilateral to the opposite
side, whose sides are 3 and 4; $\therefore$ area = 12.
Area of remaining $\triangle$ (which is right-angled)
= 6. Whole area = 18.

ALGEBRA.—SOLUTIONS.

FIRST CLASS.

1. Writing p, q, s for $a-b, b-c, c-a$
in the expression and transposing, we have
 $2(p^2+q^2+s^2)-7pqs(p^2+q^2+s^2)=0$. Now
 $p+q+s$ is a factor of the expression on the
left hand side of this = n , and $p+q+s =$
 $a-b+b-c+c-a=0$. $\therefore$ the = n is an
identity.

$$2. \text{Ans. } 2 + \sqrt{-1} + 2 - \sqrt{-1} = 4.$$

3.

(1) Factoring, we obtain

$$(2x^2 - 5x + 2)(x^2 + 3x + 1) = 0.$$

$$(x-2)(2x-1)(x^2+3x+1)=0.$$

Solve by equating factors to zero. $x=2 \cdot \frac{1}{2}$,
or $-\frac{3 \pm \sqrt{5}}{2}$.

$$(2) x^2+y^2+z^2+2xy+2xz+2yz=a^2+2b^2$$

$$x+y+z = \pm \sqrt{a^2+2b^2}$$

$$x+y+z=c.$$

$$\therefore z = \frac{1}{2}(\pm \sqrt{a^2+2b^2} - c).$$

Write down the values of x and y from the
value of z in circular order.

$$(3) \text{ Factoring } \sqrt{x+4}(\sqrt{x+1} + \sqrt{x-1})$$

$$= (\sqrt{x+4})^2, \quad \sqrt{x+4}=0 \quad x=-4.$$

Squaring both sides after dividing by $\sqrt{x+4}$,
collecting coefficients and dividing through

$$\text{by coefficients of } x, \quad x = \frac{-4 \pm 2\sqrt{19}}{3}.$$

4. See Todhunter's Larger Algebra, Art.
634.

$$5. \frac{x^2 - xy + y^2}{xy} = \frac{a^3 + b^3}{ab(a+b)} = \frac{a^2 + ab + b^2}{ab} =$$

$$\frac{x}{y} + \frac{y}{x} = \frac{a}{b} + \frac{b}{a}.$$

$$\frac{x}{y} - \left\{ \frac{a}{b} + \frac{b}{a} \right\} + \frac{y}{x} = 0 = \frac{x^2}{y^2} - \left\{ \frac{a}{b} + \frac{b}{a} \right\} \frac{x}{y} + 1$$

$$= \left\{ \frac{x}{y} - \frac{a}{b} \right\} \left\{ \frac{x}{y} - \frac{b}{a} \right\} = \frac{y}{a} \left\{ \frac{x}{y} - \frac{a}{b} \right\} \frac{y}{b}$$

$$\left\{ \frac{x}{y} - \frac{b}{a} \right\} = 0$$

$$= \left\{ \frac{x}{a} - \frac{y}{b} \right\} \left\{ \frac{x}{b} - \frac{y}{a} \right\} = 0.$$

$$6. n=6 \text{ or } -8.$$

When $n=6$, the series referred to is that,
the first term of which is 6, the second 10,
the third 14, etc. When, in the series 6, 10,
... 26, $n=-8$, we are to begin at 26 and count
backwards 8 terms. The progression will
thus be 26, 22, 18, 14, 10, 6, 2, -2.

7. Let α, β be the roots of $x^3+0.x^2+$
 $\beta x + q$,

then

$$\alpha + \alpha + \beta = 0$$

$$\alpha^2 + \alpha\beta + \alpha\beta = p$$

$$\alpha^2\beta = -q$$

whence

$$2\alpha^3 = q, \quad -3\alpha^2 = p.$$

$$\therefore \left\{ \frac{q}{2} \right\}^{\frac{1}{3}} = \left\{ -\frac{p}{3} \right\}^{\frac{1}{2}}.$$

If $x^2+max+a^2$ be the other factor, we have
 $(x^2+max+a^2)(x^2+max+a^2)=x^4-ax^3+a^2x^2$
 $-a^3x$ identically.

$$9. (1+x)^n = 1 + nx + \frac{n(n-1)}{2} x^2 + \dots$$

$$+ nx^{n-1} + x^n.$$

$$\left\{1 + \frac{x}{1}\right\}^n = 1 + \frac{n}{x} + \frac{n(n-1)}{2} \cdot \frac{1}{x^2} + \dots$$

$$+ n \frac{1}{x^{n-1}} + \frac{1}{x^n}.$$

$$\therefore 1 + n^2 + \left\{\frac{n(n-1)}{2}\right\}^2 + \dots + n^2 + 1$$

$$= \text{coefficient of } x^0 \text{ in } (1+x)^n \cdot \left\{1 + \frac{1}{x}\right\}^n$$

$$= \text{coefficient of } x^n \text{ in } (1+x)^{2n}$$

$$= \frac{2n}{n} \cdot \frac{n}{n}.$$

10. See Todhunter's Larger Algebra, Art. 473, in this question $a=1$, $b=2$.

$$n^{\text{th}} \text{ term} = \frac{1}{(5n-2)(5n-3)} = \frac{1}{5} \left\{ \frac{1}{5n-2} - \frac{1}{5n+3} \right\}$$

$$\frac{1}{n-1} \text{th} = \frac{1}{(5n-7)(5n-2)} = \frac{1}{5} \left\{ \frac{1}{5n-7} - \frac{1}{5n-2} \right\}$$

etc. = etc.

$$\frac{1}{8.13} = \frac{1}{5} \left\{ \frac{1}{8} - \frac{1}{13} \right\}$$

$$\frac{1}{3.8} = \frac{1}{5} \left\{ \frac{1}{8} - \frac{1}{3} \right\}$$

THE most romantic of all numbers is the figure nine, because it can't be multiplied away or got rid of anyhow. Whatever you do it is sure to turn up again, as was the body of Eugene Aram's victim. One remarkable property of this figure (said to have been first discovered by Mr. Green, who died in 1794,) is that all through the multiplication table the product of nine comes to nine. Multiply by what you like, and it gives the same result. Begin with twice nine, 18; add the digits together, and 1 and 8 makes 9. Three times nine are 27; and 2 and 7 are nine. So it goes on, up to 11 times nine which gives 99. Very good; add the digits; 9 and 9 are 18, and 8 and 1 are 9. Going on to any extent it is impossible to get rid of the figure nine. Take a couple of instances at random. Three hundred and thirty-nine times nine are 3,051; add up the figures and they are nine. Five thousand and seventy-one times nine are 45,639; the sum of these digits is 27; 2 and 7 are 9.

$$\therefore S_n = \frac{1}{15} - \frac{1}{5(5n+3)}$$

$$\text{and sum to infinity} = \frac{1}{15}.$$

II. We give the solution (1) reducing the determinant to the ordinary form; (2) retaining the determinant form.

$$\begin{aligned} \text{I. } & \begin{vmatrix} bc, & -ac, & -ab \\ b^2-c^2, & a^2+2ac, & -a^2-2ab \\ c^2, & c^2, & (a+b)^2 \end{vmatrix} \\ & = bc \{ (a_2+2ac)(a+b)^2 + c^2(a^2+2ab) \} \\ & + (b^2-c^2) \{ -abc^2 + ac(a+b)^2 \} \\ & + c^2 \{ ac(a^2+2ab) + ab(a_2+2ac) \}. \end{aligned}$$

Putting $a, b, c, a+b+c$, successively=0, in above, we find that $abc(a+b+c)$ is a factor,

2. Put $a=0$, determinant becomes

$$\begin{vmatrix} bc, & 0, & 0 \\ b^2-c^2, & 0, & 0 \\ c^2, & c^2, & b^2 \end{vmatrix} = \begin{vmatrix} bc, & 0 \\ b^2-c^2, & 0 \end{vmatrix} = 0.$$

Similarly for b , etc. $\therefore abc$ is a factor.

Put $a+b+c=0$ or $-a=b+c$, and we have

$$\begin{vmatrix} bc, & c(b+c), & b(b+c) \\ b^2-c^2, & b^2-c^2, & b^2-c^2 \\ c^2, & c^2, & c^2 \end{vmatrix} = \begin{vmatrix} bc, & c^2, & b^2 \\ b^2+c^2, & 0, & 0 \\ c^2, & 0, & 0 \end{vmatrix} = 0.$$

$\therefore a+b+c$ is a factor.

THE following bundle of maxims for teachers appears in an American contemporary:—

Educate and Train, as well as instruct and teach.

Healthy Emulation is a spur to success.

Order and Method are indispensable.

Little and Well win in the end.

The Hearts of teacher and taught must be enlisted.

Clear Enunciation and Pronunciation are necessary.

Copious Illustration always pays.

Remember the Capacity of the class.

Employ the Eyes and Ears of all.

Teach the Expression of ideas.

Encourage Invention.

Summarize what has been taught.

THE following colloquy lately took place between a wise child and his tutor: "That star you see up there is bigger than this world." "No, it is'nt." "Yes, it is." "Then why does'nt it keep the rain off?"

SCIENCE DEPARTMENT.

[A series of notes prepared for the Monthly, by Henry Montgomery, M.A., Coll. Inst., Toronto.]

A CONTRIBUTOR to *Chambers's Journal*, in a few sensible remarks, calls attention to the children's teeth. He very truly says, "In the nature of things it cannot be expected that children should understand the value of their own teeth; and our knowledge, or painful experience, ought to be employed to guard them from the consequences of their natural ignorance." How sad it is to see so many young mouths disfigured with gold, silver, amalgam, and decaying teeth, before their owners have arrived at the age of maturity, and often even before the age of fifteen years! Either parents or family physicians, or both, are culpable in this important matter, a matter which affects the comfort and health of the individuals themselves, as well as the comfort and enjoyment of those persons with whom they come in contact. Children are permitted to do all sorts of things with their teeth,—crack nuts, break hard sugar candies, untie knots, gnaw slate-pencils, and cut pins; but they are not naturally given to cleaning them at regular and stated times. The teeth are produced at a time of life when they begin to be needed, just as soon as the body needs solid food that must undergo the process of mastication. They are likewise developed at the commencement of the alimentary tract, in precisely the right place, evidently for the accomplishment of a particular purpose, the breaking down and separation of the food into small portions in order that the salivary and gastric fluids may the more readily perform their duties towards it. If, then, there is need for the teeth to do a certain kind and amount of labour in youth, is there not also need for them to perform that labour in adult life and in advanced years? Do the stomach and assistant digestive organs gain sufficient strength to enable them perfectly to execute the same or an increased amount of work

without the cutting and grinding aid of the dental apparatus? And why must the teeth yield and decay long before the remaining organs of the body are expected to show symptoms of decline? With few exceptions, the human family might all retain good healthy teeth until past the prime of life, say up to fifty or sixty years, if they would only give those organs "fair play." There are mentioned two principal causes of such general premature decay,—*crowding* of the teeth together, and a lack of *cleaning*. They sometimes grow more rapidly than the jaws, and consequently become irregular and hard to be kept clean. But besides this, there is another evil arising from their rapid growth and want of room. They press so closely and firmly against one another that the hard protective external covering—the enamel—cannot be evenly deposited over the entire surface of the crown. Again, many uneven teeth, displaced by crowding of the permanent set, or it may be by neglecting to extract the temporary ones to make room for the permanent, often continue quite useless throughout life. Hence crowding should be hindered by the timely removal of the superfluous ones. With respect to the second cause assigned, it may be said that they ought to be carefully cleaned every time immediately after being used. A pointed quill or a piece of soft wood may serve as a tooth-pick to remove coarse particles and prepare the teeth for a wash with a soft brush and tepid water. The brush ought mostly to be moved *vertically*, and not too often in a horizontal direction across the teeth. The cleansing process should form a part of the toilet, and needs to occupy but a minute or two after each meal. But especially should the mouth be thoroughly washed before retiring to rest at night. After partaking of acid foods or

drinks the mouth should always be rinsed with either alkaline (soda or potash) or pure water. With so many different kinds of substances passed through the mouth during a meal, and without the counteracting influences of the stomach and the digestive juices there cannot fail to be numerous chemical reactions set up in that cavity in the course of a few hours if the débris be not removed. In some cases also the teeth are attacked by parisitic fungi that appear to flourish well by penetrating the dentine tissues. In swamps, marshy regions, and stagnant pools, we are not surprised at finding innumerable plants deriving their sustenance from decaying organic matters, the refuse of other plants, and need we be astonished to learn that certain low forms of vegetable parasites find a suitable habitat in the human mouth which is plentifully supplied with minutely divided organic matters, kept at a temperature of nearly one hundred degrees, and provided with air and moisture?

SIR JOHN LUBBOCK, in speaking in the House of Commons to his Annual Motion in favour of Science-teaching in elementary schools, said he could not see why instruction was refused in science which all children liked, while they were compelled to learn grammar which they all disliked. In mechanics it might be explained to them why carts were put on wheels; the pulley, the lever, and the wedge might be explained, also the nature of the heavenly bodies, the nature of soils, and the rotation of crops, the composition of coal, clay, iron, copper, etc. The ordinary rules of health, the necessity for ventilation and cleanliness, and last, not least, the need for industry, frugality and economy.

ARRANGEMENTS are being made by the African Society in Germany for the establishment of a training school at Morocco, in which institution those persons intending to explore the wilds of the African continent may receive an education in the customs and manners of the Mohammedans and natives of Northern Africa, and at the same time be-

come more or less inured to the climate of that country. The object seems praiseworthy, inasmuch as future African travellers would be benefited by a stay in such a school, and thereby better fitted for the difficult tasks before them.

THE annual meeting of the German Natural Science Association is held this year at Baden-Baden, beginning on September 18th, and continuing for one week. Prof. Hermann, of Zurich, is to open it with a lecture upon the acquisitions of Physiology during the last forty years, and Dr. Skalweit, of Hanover, will close the meeting of the Association by a lecture on Food-adulteration.

IN a late number of the London *Geological Magazine* "A New Favourite Coral" is described by Mr. G. Jennings Hinde, F.G.S. This gentleman, the writer of valuable papers on Canadian Geology and Palæontology, viz.:—"The Geology of the Scarborough Heights," "Conodonts from the Devonian," "Annelid Jaws from the Silurian and Devonian Formations," etc., has brought to light another new fossil form, to which he has given the generic name *Syringolites*, and the specific name *Huronensis*. It is allied with the genus *Rœmeria*; but Mr. Hinde has had the opportunity, at Bonn, of carefully examining the original specimens described by Goldfuss and Edwards & Haime, and has pointed out several important differences between *Rœmeria* and his new genus. He tells us that *Syringolites Huronensis* is common in the Niagara formation of the Upper Silurian rocks in Great Manitoulin Island, Lake Huron.

A VERY great deal of the metal Platinum is required to keep Edison's electric lamp in operation; and as this substance is very expensive Mr. Edison is exceedingly anxious to discover a mine of it in the United States. With this view he has sent out over 20,000 circulars and samples, and also many mining and mineralogical experts to various parts of the American Union. Answers to the circulars have been received from several of the

old miners in Colorado showing that Platinum is widely distributed in that State. One of the mineralogical experts, Mr. W. E. Hidden, writes in an encouraging strain from North Carolina, in the auriferous gravels of which State he has found twenty-three minerals bearing a strong analogy to those constituting the platiniferous gravels of the world. Platinum occurs in company with gold, and, as its Spanish name denotes, is of a silvery-white colour. It may be recognized by appearing in very small round grains like globular specks of steel, by being very malleable, infusible (except in the oxyhydrogen flame), and insoluble in any of the acids (excepting aqua regia); it is also heavier than gold, having a specific gravity of 21.5 while that of gold is about 19.3. Owing to the properties of platinum there are additional reasons for wishing Edison success in his efforts to find considerable quantities of this metal. That it does not corrode or even tarnish in either dry or moist air, that it is able to withstand high temperatures, and is not attacked by acids, are properties that render Platinum extremely useful in the chemical laboratory.

THE singular formation described by Dr. J. W. Dawson as *Eozoön Canadense*, and regarded by him and most other naturalists as a chambered Rhizopod of the order Foraminifera, is once more under discussion. It occurs plentifully in the Laurentian series of rocks in Canada, having likewise been discovered in rocks of similar age in Bavaria, and in the Lower Silurian marbles in Ireland. Several have doubted that it is the remains of an animal at all, and a German scientist, Dr. Mœbins, has recently published an extensive memoir, illustrated with fine plates, upon the matter, in which he denies its organic origin. Both Dr. Dawson and Dr. Carpenter have already replied, asserting that Dr. Mœbins' conclusions are incorrect. Dana says, "whatever may be the final decision in

regard to the *Eozoön*, there can be but little doubt that rhizopods existed in Archean times."

A PRIZE has been awarded to the Swansea Waggon Company of Glamorgan, Wales, for a railway van that will keep fresh meat in good condition during a long journey. Meat, rabbits, and poultry, were kept fresh throughout a nine days' journey, and the interior of the van maintained a temperature of thirty-nine degrees whether in motion or at rest.

WITHIN a comparatively short period four new metals have been discovered, Gallium, Scandium, Norwegium, and Uralium, the first three being named after the countries France, Scandinavia, and Norway. Hence there are about sixty-seven elements at present known to the scientific world. Gallium, the earliest discovered of the four above named, has perhaps the most curious and interesting history of any of them. The existence of a metal possessing the properties of Gallium was definitely predicted by M. Mendelejeff, a Russian chemist, in 1871, and previously also by Mr. Newlands. This prediction was based on a study of the relations of the atomic numbers of the known elements, and their ratios of combination with one another. In the seriation which these numbers form certain terms are here and there wanting, and one was missed, having properties between Aluminium and Indium. Mendelejeff minutely described what these properties should be, giving the sp. gr. as 5.9. Several years afterwards Boisbaudran discovered the metal itself in connection with Zonic Blende from the Pyrenees, and ascertained its sp. gravity to be 5.935. Uralium is the latest discovery among the metals, and A. Guyard is the discoverer. It is nearly as white as silver, is very malleable, is almost as soft as lead, and is much more ductile than platinum, with which it is closely related in many respects. Its sp. gr. is 20.25; and its combining weight is 187.25.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

TORONTO TEACHERS' ASSOCIATION.—

The above Association held its half-yearly meeting in the theatre of the Normal School building on the 26th and 27th of September, under the able presidency of the Inspector. We say *able*, for Mr. Hughes has the excellent faculty in a chairman of keeping up interest in the discussion of any subject which he himself is master of. The business was begun by an address from Mr. McDonald, Head Master of Wellesley School, on "How to manage Writing Classes." He has given special attention to the subject of writing, and can therefore speak with authority upon any matter connected with it; besides he is himself an excellent scribe. It was generally agreed by the meeting that writing upon slates with *long* pencils might wisely be begun very early in the child's school life, and that both the printed letters and script should occupy his attention. When copy-book writing begins, each child in a class should write the same copy at the same time; and when the writing is a little advanced, that of each class should be done by counting the strokes by one of the scholars of the class. In advanced classes only the beginning or the ending of a line should be announced. There was perhaps a little too much tendency to formalism in Mr. McDonald's remarks. A little of this is very proper, and even necessary, in the management of school work, but if carried to excess it may become a serious evil by distracting attention unduly from proper school-room work.

The next business before the meeting was a lecture by Mr. R. F. Martin, Head Master of Parliament Street School, on the best method of teaching the Addition Table, which he exemplified by a class of his own

scholars. This was by far the most interesting and instructive of the whole proceedings. The speaker, in a modest and unpretentious manner, showed that by judicious teaching, a class of Second-Book scholars could be got to apply the Addition Table with as great facility as the Multiplication Table. It took the meeting by complete surprise to find a child of seven years of age add up columns of six and seven figures almost as fast as Mr. Martin could put them down, and much faster than most of the audience could add. We are but doing a public duty in calling the attention of the teachers of the country to Mr. Martin's system, which, if adopted and intelligently worked out, will forever banish the slow, uncertain, and too often grotesque manner of counting which prevails amongst children. It is based upon a faculty of the mind, which is an important factor in all intellectual progress,—the Association of Ideas.

Mr. Sefton, one of the Music Teachers of the City Schools, took up the teaching of Music, and showed how persons without much special training might yet make the music lesson both instructive and interesting to children. He did this by taking the teachers present as a class and giving them simple exercises upon the diatonic scale. He uses numbers to represent the sounds, in preference to either syllables or letters.

The last address on Friday afternoon was on "Fourth-Book Lessons for Admission into High Schools," by Mr. S. Hughes, of the Collegiate Institute. A good deal of attractive and useful information was given upon the lessons which he took up, but the subject was not handled with that practical skill which Mr. Hughes is noted for in the school

room. Perhaps the subject was not a congenial one, or perhaps his audience expected too much.

In the evening Dr. Hodgins, Deputy-Minister of Education, delivered an earnest and practical address on the subject "A Plea for Elementary Science and Industrial Training." The lecturer supported his "plea" by forcible arguments, and by quotations from eminent writers of America, Britain, and the Continent of Europe. The teachers were glad to welcome the Deputy-Minister on the platform at their meeting, away from the chilling atmosphere of official life, which seems to freeze "the genial currents of his soul," and were gratified to find him extend that aid which, with a little more enthusiasm, would become potent for good in directing aright the educational progress of the country. The address bore fruit at the meeting by the adoption of a resolution declaring that a knowledge of some branches of Physical Science should be required from all candidates

for teachers' certificates. This was evidently aimed at the option granted at present to candidates for Intermediate Certificates, of choosing for examination either a Language or the Natural Science group, which includes Natural Philosophy, Chemistry, and Book-keeping.

The meeting concluded its proceedings on Saturday by a general discussion on Needlework and on Corporal Punishment. Plain sewing was very strongly insisted upon as being most valuable and useful for those attending our public schools; and, for the sake of effectual teaching, it was suggested that the same kind of sewing should be practised by each scholar of a class at the same time. Nothing new could hardly be expected to be said on such a threadbare subject as that of corporal punishment; the point that the meeting was most united upon was that the influence and authority of the parent should be more frequently invoked to assist the teacher in managing refractory scholars.

HIGH SCHOOL DEPARTMENT.

THE following correspondence has been handed to us for publication :—

TORONTO, 18th Sept., 1879.

SIR,—I am directed by the Honourable the Minister of Education, to state, in reply to your letter of the 27th ultimo, that he has fully considered the Resolutions of the High School Masters' Section of the Ontario Teachers' Association, forwarded him on the 27th ultimo by you as chairman of that Section.

The Minister concurs in the opinion of the Masters as to the time of holding the Intermediate Examination, and also as to distinguishing between those who pass the Intermediate Examination simply, and candidates for Class II. Certificates.

The other matters have been referred to the Central Committee for their report (a copy of which I am directed to furnish you for the information of the High School Masters).

The Minister has instructed the Chairman of the Committee that in the Mathematical

subjects, the examination, even for Class II. certificates should be kept within the present standard, if not still lower. The report discusses very fully some of the points specially raised by the High School Masters, and the Minister submits this for their consideration.

I have the honour to be, Sir,

Your obedient servant,

ALEX. MARLING,

Secretary.

J. SEATH, Esq., M.A.,

Chairman, High School Section,
Ontario Teachers' Association,
St. Catharines.

TORONTO, 12th September, 1879.

SIR,—I have the honour to acknowledge the receipt of Mr. Seath's letter of the 27th of August, forwarding certain resolutions passed by the High School Masters' Section of the Provincial Teachers' Association, on which you desire me to express an opinion.

1. The High School Masters say, "in the former" (the several optional groups) "we would suggest that the examinations be less mathematical and more practical in their character."

By "mathematical" questions I suppose are meant those in which results have to be calculated; while "practical" questions are those in which a knowledge of principles experimentally established, with the evidence on which the principles rest, is required.

A reference to the last examination papers will show that the questions are by no means excessively mathematical. In the Chemistry paper, 80 marks out of a total 110 are allowed for questions exclusively practical. In the Natural Philosophy paper, 68 marks (indeed on a fair judgment I might say 75) out of a total of 110 are allowed for practical or non-mathematical questions. It is absolutely necessary that some questions involving calculation should be set, otherwise there could be no assurance that the pupils understand how to apply the principles in which they are instructed. I desire to add (what the High School Masters are perhaps not aware of) that the questions on which their pupils most generally fail are not the mathematical, but the practical. If the questions were made less mathematical than at the recent examination, I am afraid that the result would be utter disaster to the candidates.

2. The High School Masters say: "In view of the fact that the grading of the High Schools and the distribution of a large portion of the Legislative grant is decided according to the results of inspection, it is, in the opinion of the H. S. Section, desirable that the H. S. Inspectors should be enabled to devote a greater amount of time to the work of inspection at their semi-annual visits." The High School Inspectors instruct me to reply as follows:—They are sensible of the importance of devoting as much time to the inspection of the High Schools as is necessary, not only for the equitable distribution of that portion of the grant which is divided on the results of inspection, but for benefiting the schools in every way to the utmost possible extent. As regards the distribution of the grant they are satisfied that no school has suffered injustice from the amount of time devoted to its inspection; they will be glad, however, to meet the wishes of the High School Masters by making their visits in future as lengthened as circumstances may permit.

3. The High School Masters say: "That the English History presented should be confined to some particular period instead of extending, as at present, from Julius Caesar to the present time." The High School Inspectors think it would be unwise to depart

from the system now observed for the following among other reasons:—

(a.) Teachers holding Provincial life certificates are expected, and with reason, to know the leading events at least of the history of England and Rome. (b.) One of the most valuable lessons to be derived from history is historical *proportion*, or the relative importance of historical events; another is the causes of the progress of nations in civilization and constitutional self-government, and the steps of national decadence; another is the literary growth and the distinguishing character of one period as related to others. None of these, the Inspectors think, can be obtained by the study of an isolated epoch. (c.) For a special period to be studied judiciously or to advantage its relations to the preceding age should be known before-hand, hence such a system of History-teaching belongs more properly to an advanced stage in the student's progress; besides, a more detailed examination of a period is necessary than is convenient in a High School. (d.) The true remedy is for the teachers to improve their methods.

4. With regard to the "system of notation" which the High School Masters say "should be more fully recognized in the assignment of subjects for examination to members of Central Committee," the Minister will readily understand that some members of the Committee are specially fitted to examine on some subjects, and others on others, and it is desirable that the schools of the country should have the benefit of the special attainments of the several members.

I have the honour, etc.,

(Signed) G. P. YOUNG.

To the Hon. the Minister of Education.

—In this month's issue we can only briefly discuss the questions brought up by the foregoing correspondence. We invite in the meantime from the High School Masters an expression of opinion on the points submitted for their consideration. The course pursued by the Minister, as indicated in his letter, will be productive of great satisfaction to the profession, and we trust that in the interest of good sound healthy education the Intermediate itself may soon be numbered among the things of the past. It is a well-known fact that the High School Masters without, so far as the public are aware, a single exception, are unanimous in their estimate of the effect on education of the Intermediate examination. In many respects the old system of

distributing the Legislative Grant was superior to the present one, and after all the fuss that has been, and is continually being, made about "Payment by Results," the results are, in most instances, substantially the same.

But to refer briefly to Prof. Young's letter,—

(1.) We believe that the Chairman of the Central Committee has misapprehended the meaning of the term "practical," and with a not inexplicable shortsightedness has assumed that it is possible to set in the subjects of Chemistry and Natural Philosophy only such questions as the Committee has been in the habit of setting. It seems to us that what the Masters desire, and what their resolution aims at, is questions which will have the effect of giving the instruction in these subjects a character which will be of some benefit in actual life to the students in the Science course. It is by no means the only duty of our Secondary Schools to train the mind particularly in such Sciences as are under consideration; and taking into account the peculiarly theoretical treatment of some of the other subjects on the Intermediate programme, the Department can well afford to make the instruction in Chemistry and Natural Philosophy "capable of being turned to some use or account" in ordinary life. But there is another view of the matter, and this, we are led to believe, was one of the reasons that induced the Masters to pass the Resolution. The questions proposed in Natural Philosophy are in many cases capable of solution far more easily by the aid of Trigonometry, and the student who has to pursue this subject further is forced to unlearn many of the cumbrous methods the present system has led him to adopt. The *ad captandum* appeal to the Masters, in the last clause of this paragraph of the Professor's letter, is liable to a construction which we should be sorry to put upon it. The Masters evidently desire to advance the interests of good education—not merely to pass pupils through the meshes of the Intermediate.

(2.) In reference to High School Inspection we have reason, and good reason we may add, to state that the opinion expressed by

the Inspectors is by no means that held by the Masters. It is simply absurd to suppose any man able, be his position what it may, to form a correct estimate of even an ordinary High School in the few hours the Inspectors sometimes devote to this duty. So long as the distributors of the Grant confined their operations to round numbers the tax on credulity was not so heavy; but, when it has come to odd cents and apparently minute sub-divisions, the profession may be well excused for their very mild expression of opinion. It has been distinctly charged in the public prints, and, so far as we know, not denied officially, that money has been awarded for certain subjects without even the pretence of inspection. The latest case we know of, occurred in the Dundas High School, where the sum of \$6 was awarded for Upper School work without even the performance of the usual ceremony. It is also well understood that none of the three Inspectors professes to have any knowledge of Drill, Music, or Drawing, and yet we find minute distinctions made in the schedule between the schools in which these Departments are attended to. If any established system is followed by these officials in the discharge of this branch of their duties, it would be in the interests of all concerned for the Minister to authorize an explanation. We by no means under-estimate the delicacy of the task imposed on the Inspectors, but it is only proper that the difficulties we have pointed out should be obviated in some way.

(3.) We are happy to be able to agree with the Inspectors in their remarks on History-teaching in our High Schools. To a very large extent the fault lies with the Masters themselves. But a good deal of the trouble that exists may be attributed to the facts, that an effort is often made to prepare candidates for the Intermediate in too short a time, that owing to the recent introduction of this study into our Public Schools, entrants come with little or no knowledge of History, and that an independent knowledge of "historical proportion" or judgment in any of its higher applications cannot be expected, to more than a limited extent, from the very young candi-

dates that form the majority of those who present themselves at the Intermediate Examination. But, while we should recommend the Masters to improve their methods, an examination of the papers that have hitherto been set convinces us that the difficulties attending the present position of the bulk of our teachers of History have not always been taken into account by the examiners.

(4.) We have no space to take up the topic of "Rotation of Examiners." We may say, however, that we are glad to observe that Professor Young has shown his appreciation of the difficulty so far as he and his colleagues are concerned. But the interests of education are paramount; and while the Chairman has been so kind as to show how the examinations have been adapted to the exigencies of the Committee, he might have been ingenuous enough to admit the correctness of the position taken by the Masters. The Minister, it is almost needless to observe, is aware that the Central Committee was created presumably for the benefit of the schools, and not the schools for the benefit of the Central Committee.

THE following are new regulations anent the Intermediate Examination approved by the Lieut.-Governor in Council, 4th Oct., 1879, as issued by the Education Department:—

The first of these, we can scarcely refrain from saying, is objectionable on the score of indefiniteness, as the time for holding the Intermediate should be fixed definitely, or at least a notice of one clear year should be given before the Examination is held, so that teachers may not be kept in unnecessary suspense on the point.

I. The Intermediate Examination will be

held in each year at the time fixed by the Department.

2. The subjects will be grouped as heretofore, and candidates who obtain forty per cent. of the total in each group, and not less than twenty per cent. in each subject, shall be considered as having passed the examination.

3. Candidates who, in passing the Intermediate Examination, obtain twenty per cent. on each subject, and forty per cent. on the group, will be regarded as having passed the non-professional examination for Third-class certificates. Those who, besides fulfilling the above conditions, obtain fifty per cent. of the whole number of marks attainable, will be considered as having passed the non-professional examination for Second-class certificates, grade B; while those who obtain thirty per cent. on each subject, fifty per cent. on the group, and sixty per cent. of the aggregate marks, will be considered as having passed the non-professional examination for Second-class, grade A.

4. All the answers in each subject are to be read and the values assigned. While the passing is to be determined by these tests, the questions in each subject are to be framed by the examiners, not with reference to any high standard for competitive examinations, but solely to ascertain whether the candidate has acquired a fair knowledge of each subject, and so is qualified or not for the Upper School, or for non-professional standing as a teacher (as the case may be) having regard to his proficiency or deficiency in answering questions reasonably framed for this purpose in each subject.

The works to be read critically for the Examination of 1880—see the High School programme—are Gray's "Elegy in a Country Churchyard" and Goldsmith's "Traveller."

A SCHOOL-BOY on the other side of line 459, gave his teacher the other day, this illustrative definition of "responsibility:" "Boys has two buttons for their 'spenders, so's to keep their pants up. When one button comes off, why, there's a good deal of *responsibility* on the other button."

SEE that your pupils understand clearly what you require them to do. Most of all endeavour to understand it yourself.

THE mind of the pupil is to the teacher what the clay is to the potter—a plastic body that may be so fashioned as to become an object of admiration or of insignificance.

PUBLIC SCHOOLS DEPARTMENT.

INTERMEDIATE EDUCATION IN ENGLAND.

Mr. Forster, in a speech lately delivered on this subject in London, estimates that not more than 50,000 out of 350,000 pupils attend schools that can afford any guarantee of efficiency. The remedy he suggests is a system of registration for competent teachers who are employed in Secondary Schools, and the establishment of an Educational Council composed of members of the Universities, nominees of the Crown, and representatives of the teaching profession, whose duty it should be to supervise all matters connected with Secondary Education. His plan in fact resembles, in its main features, the one contained in Dr. Lyon Playfair's bill lately before the House of Commons. Mr. Forster believes however that no changes should be made without consulting the feeling of the teachers and sympathizing with it. That he is prepared to do both the following extract from his speech will show. "The idea of an Educational Council, fairly constituted, with a just representation of teachers upon it, taking stock every year of the state of education, making suggestions for its improvement, and superintending a scheme for the training of teachers, had taken much hold of the public mind and the professional mind, and with all that the teachers had become more and more possessed of the desire of not being content until the teaching profession was put on a level with the other great professions in society. Why ought not the profession of teaching to have as much high honour and public regard, and be as much a distinguished profession, as that of either law or medicine? If we looked at the work which its members were doing for society, at the responsibility of that work, at the difficulty of doing it well, at the obligation under which they were putting so-

ciety in general, they at least stood as high as the men whom we sent for when we were ill, or the men to whom we resorted when we wished to go to law with our neighbours."

TEACHERS' SUPERANNUATION IN IRELAND.

The condition of the Irish National School Teachers for the last few years has been far from satisfactory. There has been a gradual decrease in salaries without any prospect of relief. At length when the Government found that persons of the right stamp were beginning to shun the profession, owing to the indifferent salaries paid, it came to their relief and during the recent meeting of Parliament had a bill passed to provide pensions for those who remained in the profession.

A sum not to exceed one million three hundred thousand pounds is to be set apart from the funds remaining from the disestablishment of the Irish Church for this purpose. The interest on this amount, supplemented by contributions from the teachers themselves, will amount to £46,000. Teachers of all grades in employment at the time of the passing of the act have the option of becoming subscribers to the pension fund within five years; but those who become teachers after the passing of the act have no option. The amount of the quarterly premium is to be deducted from the salaries,—the amount varying with the class to which the teacher belongs and the age at which he enters the profession. Thus a man entering the profession at 20 years of age pays annually 11s. 4d., if he is a third-class teacher; at 30 years of age he pays 18s. 8d., and at 40 he pays £1 12s. 4d. If he is a second-class teacher and enters the profession at any of the above ages he pays respectively 15s. 2d., £1 4s. 8d., and £2 2s. 8d. If he is a first-class teacher and enters the profession at any of the

ages enumerated, he pays respectively £1 9s., £2 7s., and £4 1s. 8d.

In return for these annual payments a male teacher, if he retires at the age of 60 years, will receive an annual pension of £22 if of the third-class; £29 if of the second-class; and £53 if of the first-class. The highest pension paid is to those who remain teaching till they are sixty-five years of age, when the amounts for each class are £35, £46, and £88 respectively. On the other hand the lowest pension paid is when a teacher retires at fifty-five years of age; the respective amounts then are £15, £19, and £34.

Female teachers have to pay a higher premium, but they may retire on a pension any time between fifty and sixty years of age—the pensions for the three classes at the former age being £12, £16, and £28 respectively, and at the latter age £25, £34, and £60.

Provision is made for granting gratuities to disabled teachers. If a teacher withdraws from the profession previous to the time when he would be entitled to a pension the amount of his subscriptions is returned to him. A teacher if he choose may be a subscriber to a class lower than his own, but then he will be entitled only to the pension of the class to which he subscribes.

BRITISH WEIGHTS AND MEASURES.

By the act passed by the Imperial Parliament which came into operation the first day of this year the perch consists of 22 yards, not $5\frac{1}{2}$ yards as heretofore, and ten perches or 220 yards make a furlong. It will thus be seen that the perch is made identical in length with the Gunter's chain. As the acre still consists of 4,840 yards, ten of the new perches squared make this up; the rood is still one-fourth of the acre or 1,210 square yards.

The following is the new Avoirdupois weight:—

16 drams make 1 ounce,
16 ounces or 7,000 grains make 1 pound,
14 pounds make 1 stone,
8 stone or 112 lbs. make 1 hundred-weight,
20 hundred-weight 1 ton.

All articles sold by weight are to be sold by this weight except—1. Gold, silver, platinum, and precious stones, which may be sold by the ounce Troy which is still to consist of 480 grains, or by any decimal part of such ounce. 2. Drugs, which may be sold in retail by Apothecaries' weight.

The gallon is to be the unit of measure, and shall contain ten pounds of pure distilled water at a temperature of 62° Fahr., and with the barometer at 30 inches. The metric system as heretofore continues legal, but its use is optional.

CONTRIBUTORS' DEPARTMENT.

ANSWERS TO CORRESPONDENTS.

Teacher.—There will be no "Intermediate" Examination in December.

Yes, there will be an Examination for entrance into the High Schools and Collegiate Institutes in December next.

We have so far been unable to find out what is to be the course of study prescribed for First-Class Teachers to be examined on next July. We hope to give full information on this point in our next issue.

We cannot answer the question, "Why Queen Victoria was made Empress of India?"

It was an act of Beaconsfieldian wizardry. The assumption of the title does not enlarge her authority.

Goderich.—The "clever couplet" on mind and matter you enquire the source of, appeared in *Punch* some ten years ago. Correctly it is as follows:

"What is mind? no matter.
What is matter? never mind."

Truro, N.S.—Deschanel's Natural Philosophy has been translated by Prof. Everett, of Queen's College, Belfast. Blackie & Son are the publishers. The translator has in-

roduced into the work the results of many of Sir Wm. Thomson's and Prof. Faraday's experiments in Electricity and Magnetism, which considerably increases its value over the French edition.

Inquirer.—We cannot answer the question whether the closing passage in Dr. McLellan's recent Presidential address is or is not intended as "a dig" at the Chairman of the Central Committee. As you say, however, the reference to "the careless admissions of a few Mathematical Metaphysicians who sacrificed the certainty of Mathematics for the aberrations of Psychology" was, under the circumstances, a delicate one. The address is so marked by intellectual "neck-craning" and mental tiptoe effort that you must excuse us in refusing to think out the meaning of the other passages you refer to in the Doctor's disquisition. We join you in the hope that the learned Doctor has got down by this time from his super-mundane heights.

Brant.—The translation into Latin verse of the stanza from the Rev. John Moultrie's poem, "Forget Thee," is to be found in Kennedy's *Sabrina Corolla*. We quote it for you, appending the original.

OBLITUS UT VIVAM TUI?

"Oblitus omnes ut tui vivam dies?

Cesset avis liquido mulcere silvas carmine:
Oblitus omnes ut tui vivam dies?

Negligat unda maris tumere sub lunæ face:
Stituculosa nulet immemor rosa

Nectareos bibere rorantis Hesperii scyphos:
Tuo paternum litus effluat sinu,

Vatasque cæruleo nota colore juga,
Vultusque amatus quisque, et a puertia

Pluruma deliciis signata plurimis loca:

COURTESY of manner is one of the greatest essentials to a teacher, or any one who aims at success in guiding children on the road to knowledge. Not that they should go through all the formulæ that Chesterfield lays down as essential to intercourse between ladies and gentlemen, but they must show a studied kindness for their welfare and a regard for their feelings.

THE true value of a teacher is determined not by what he knows, nor by his ability to impart what he knows, but by his ability to stimulate in others a desire to know.

Quorum simul te ceperint oblivia,
Excideris animo tu cara, tum demum meo."

"Forget thee! bid the forest-birds forget
their sweetest tune;

Forget thee! bid the sea forget to swell be-
neath the moon;

Bid thirsty flowers forget to drink the eve's
refreshing dew;

Thyself forget thine own dear land, and its
mountains wild and blue;

Forget each old familiar face, each long-re-
membered spot:

When these things are forgot by thee, then
thou shalt be forgot."

J. H. H.—We transcribe for you Frank-
lin's Epitaph:

"The Body of

Benjamin Franklin, Printer,
(Like the cover of an old book,

Its contents torn out,

And stript of its lettering and gilding,)

Lies here, food for worms.

Yet the work itself shall not be lost,
For it will (as he believed) appear once more

In a new

And more beautiful edition,

Corrected and amended

By the Author."

It has been suggested, however, that Frank-
lin was indebted for the idea to Francis
Quarles, from whose "Divine Fancies" we
quote you the following:

"The World's a Printing-House, our Words,
our Thoughts,

Our Deeds, are Characters of several sizes;
Each soul is a Compos'tor, of whose fault;

The Levites are Correctors; Heaven Redises;
Death is the common Press, from whence be-

ing driven,

We're gather'd, sheet by sheet, and bound
for Heaven."

A CONTEMPORARY has a wise article on
"Common School Education," in which firm
ground is taken against the cramming of
children's heads with special studies. It
says:—"They are forced into the minds of
pupils at an age when the reasoning powers are
undeveloped and the memory in its highest
state of receptivity. Obviously, that is the
age when elementary facts should be laid in
store, and when the art of using facts should
begin to be taught in that careful and guarded
way which takes care not to anticipate de-
velopment.

CONTEMPORARY LITERATURE.

THE CULTIVATION OF THE MEMORY; ON THE USE OF WORDS. Philadelphia: Eldredge & Bro. 1879.

These are the second and third of the "Manuals for Teachers," the first of which, on "The Cultivation of the Senses," we have already noticed. The work on "Memory" is apparently the production of the writer of the initial volume of the series. It shows the same admirable characteristics in closeness of thought, practical bearing, and thorough acquaintance with the subject.

The author points out that the two great aids to the cultivation of the memory are:

"(1) Attention, slow, grave, deliberate, to secure clear well-marked ideas or mental pictures acquired through each of the senses that can be employed.

"(2) Association of these ideas, through common qualities, by which you can connect them with each other, so that each idea may eventually and immediately suggest its appropriate companion idea or ideas."

He makes a meagre and unsatisfactory expansion of his first statement, but a very instructive one of the second. Indeed the chapter on Association is worthy of the most careful perusal by all young teachers who have an anxious desire to improve the memory of their scholars. In the fourth chapter some admirable suggestions are made for employing special subjects such as arithmetic, geography, etc., for the development of memory.¹ Take the following for example:—"Success in logical reasoning is the first and most important aid to memory in arithmetic. Next to this we place neatness of work, where each figure is formed in large and legible characters, and each step of reasoning is clearly marked with detailed explanations at the side."

The illustrations of object lessons might have been more happy and some of them

more within the range of possibility. For example, what teacher in giving a lesson on Physical Geography would go to the length of making "a model in clay or sand so that the class could see the basin, water-shed, tributaries, etc." Yet our author would consider that teacher an indifferent one who would not adopt some such plan.

The chief fault of the work is its brevity, but even this is not a sufficient excuse for omitting Repetition as one of the chief factors in aiding memory. The American Publishers have added to the size of the work, but by no means to its value, by incorporating a chapter on the Cultivation of the Memory in youth from an American author. It will interest the reader to contrast this with the third chapter for the sake of seeing the difference in style, matter, and opinion, between the English and the American writers.

The Manual on "The Use of Words" has the same practical bearing, shows the same activity of mind on the part of the writer, and as much acquaintance with school-room work as the two preceding Manuals, but this is certainly not done by a strict adherence to the title.

There is for example an admirable explanation of syllogistic reasoning in one chapter, some thoroughly practical remarks upon the art of school-room questioning in another, while a third is devoted to the study of words, not their use. This last, however, we must do the English author the justice to say he is not responsible for. It is taken from a work by Mr. Webb already noticed in these pages, and is more germane to the matter than the chapter appended to the Manual on Memory.

It will not be the author's fault if the reader does not always grasp his meaning, for wherever there is the slightest obscurity he dispels it by an apt illustration. His ideas are worth all the pains he has taken to make

them clear. We might give many evidences of this but we will content ourselves with two.

On page 25 he thus speaks of Definition : —“We hope we have shown that a definition instead of preceding a lesson, as it often does, should be the conclusion of a lesson or of some definite part of it. Consider what a definition is ; it is not the giving of additional knowledge, it is the summing up, the gathering into a few words of all the ideas that have been obtained by a careful comparison of a number of objects by the abstraction of their common qualities which are grouped so as to represent a class ; nor can the terms of a definition be of much use before these ordinary processes of thought have been performed.” In our second extract he shows his independence of thought in a manner that may startle some of our readers who are accustomed to regard paraphrasing as one of the best aids to composition.

He says on page 61, “Pharaphrasing or reproducing a passage of poetry in their (the scholars’) own language is impossible, if the passage is involved and difficult ; if the passage is easy and simple, the poet will have chosen the best words in the shortest form, and his language could only be changed for the worse.”

ELEMENTARY ANATOMY, PHYSIOLOGY, AND HYGIENE ; for the use of Schools and Families. By Edward Playter, M.D., etc. Toronto : Hart & Rawlinson, 1879.

At the first sight of this book of 168 pages we were struck with the suitability of its title, for the elementary works of similar character which have heretofore appeared for use in our schools all bear the simple title of Physiology, while at the same time they necessarily treat, at some considerable length, of Anatomy and Hygiene, some acquaintance with both of which being absolutely requisite for the correct understanding and the practical uses of Physiology.

We agree with the author in the opinion that a “want has been much felt for an elementary work suited to the youthful portion of the people” on the above subjects. But, that his book is calculated to supply the want is another question, and one about which we

entertain some doubts. Dr. Michael Foster’s little Primer is admirably adapted to the requirements of very young persons, being written in language easy to be understood by children. Huxley’s “Lessons,” on the other hand, is suited only for students of advanced years who already possess some knowledge of the subject ; though it is a somewhat expensive book for the majority of boys and girls to purchase. Something intermediate is needed that will be neither too brief and simple on the one hand, nor too detailed and technical on the other. This want Dr. Playter’s book in part supplies ; but, not to mention several omissions, it appears to us that some corrections and alterations, and many acknowledgments ought to have been made before the work was permitted to pass through the press.

Without stopping to dispute the assertion, and others of equal importance, that all living bodies are organized, we cannot help thinking that it is a great mistake in an *elementary* work to reverse the usual order of subjects by introducing the brain and nervous system first to the young beginner. It can hardly be sensible to ask the pupil at the outset to enter upon the study of so complicated an organ as the eye or the ear ; or to study the animal organs and functions before he has made himself in the least acquainted with the less difficult study of the organs and functions of vegetation. Nor do we think sufficient reason is given for the change by the statement that the brain and nervous system are “most closely connected with the mind.” However, the book seems to contain very much of what is required in a text-book for schools, and, upon the whole, it is tolerably accurate, and is likely to prove useful in the hands of a properly qualified teacher. But, it is impossible to peruse the book without feeling that much of its accuracy is due to extensive quotations from such great authorities as Huxley and Foster. In vain have we sought however, for an acknowledgment of the sources whence those extracts have been taken. In saying this we do not mean to imply that the great established facts of the science must not be the same in all works on Physiology, no matter by whom written. The foundation, the essence of the work, so to speak, must re-

main the same ; but it is to the construction and even to the relative order of many of the sentences that we venture to object. The likeness is so apparent that we cannot refrain from calling attention to a few of them. On page 42 of Foster's Primer we find the following passage: "So thick-set are the little blood-vessels, that wherever you thrust a needle, be it as fine a needle as you please, you will be sure to pierce and tear some little blood channel, either artery or capillary or vein, and out will come the ruddy drop." On page 54 of Playter's book we find: "so thickly set are these little vessels that you cannot thrust in even the finest needle without piercing one or more of them, when out will flow the crimson drop." On p. 51 of Foster we have "the blood is the great circulating market of the body, in which all the things that are wanted by all parts, by the muscles, by the brain, by the skin, by the lungs, liver, and kidneys, are bought and sold. What the muscle wants, it, as we have seen, buys from the blood." Compare Playter, pp. 54-5, "The blood is like a great circulating market in the body. . . . From it, all that is wanted by the various parts—by the skin, the brain, the bones, the flesh, is obtained ; . . . what your muscles want they obtain from the blood ;" etc., etc.

"Huxley's Elementary Physiology," p. 134, says "all the substances which are used as food come under one of four heads. They are either what may be termed Proteids, or they are Fats, or they are Amyloids, or they are Minerals. Fats are composed of carbon, hydrogen and oxygen only. All vegetable and animal fatty matters and oils come under this division."

Playter, p. 75, thus paraphrases the above: "All foods come under either one or the other of four heads ; they are either proteids, or they are fats, or they are amyloids, or they are minerals. Fats consist of carbon, hydrogen, and oxygen only. All animal and vegetable fats and oils come under this head." Numerous other passages might be pointed out did space permit ; but the foregoing will suffice to show how nearly the Canadian author approaches an infringement of the

copyright laws which a dutiful acknowledgment in his preface would place in another light.

THE ENGLISH LANGUAGE : Its History and Structure. Royal School Series. London : Thomas Nelson & Sons ; Toronto : James Campbell & Son, 1879.

This is a spirited outline of the history of the English language, and is intended for the higher classes in Elementary Schools. The historical development of the language is given with force and general accuracy. Then follows a succinct account of the history of English literature, and last of all some simple exercises in paraphrasing. The Etymology is touched upon sufficiently for beginners, lists being given of the most useful Greek, Latin, and Anglo-Saxon "roots." We do not however understand why a greater number of the words in the passage on page 39, beginning "But the dominion of the Norman" is not printed in italics, which are employed to indicate words of pure English origin, unless it be with the design, of which we have a hint in the "outline" at the beginning of the chapter, to limit the italicizing to words of special import. Nor is it very easy for the Canadian to understand why Canada should be supposed to have "only hundreds of thousands" of English-speaking people against the millions of the United States, especially when the author's purpose is to show the wide range of the lands in which the language is spoken. A Canadian too might be pardoned for objecting to the following line in a poem on the "Triumphs of the English Language," which we elsewhere quote, taking the liberty of substituting another adjective for the italicized one. "It spreads where winter piles deep snows on bleak Canadian plains."

But notwithstanding all this the book is one that may be heartily welcomed by the teacher, for what is wanted for elementary classes is not long, abstruse treatises, but a concise, intelligible primer such as this, written in a lively, attractive style, and sold, as the present work is, at a low price. We believe that there is not among our authorized text-

books any one work which gives a connected account of the subjects dealt with in this little volume, hence the great bulk of our school-children leave school with hardly an idea of what is meant by the history of the literature of their native tongue. With the present work in their hands this could not continue to be the case, and we therefore trust that it will come into extensive use.

LOVELL'S INTERMEDIATE GEOGRAPHY, with Maps and Illustrations; being introductory to Lovell's Advanced Geography, authorized by the Hon. the Minister of Education, Ontario. Montreal: John Lovell, 1879.

The personal history of the publisher of this Geography, and the record of his long and industrious life, is a perpetual inspiration to any one familiar with his remarkable career. Before many of the present generation were born, Mr. Lovell's public services to the country had earned for him enviable distinction, and a pension from the British Government which his ardent patriotism and generous, disinterested nature would not allow him to accept. Exchanging the military saddle in the turbulent times of '37 for work at the printer's "case," he found ready means to serve his country in a sphere of usefulness no less important than that of the military trooper. His enterprise and industry, as well as the integrity of his character, and his high sense of honour, soon secured him recognition and employment by the authorities in the practical career he had set, before him. As Parliamentary printer, through the many years of the early Colonial life of the country, the Government libraries and State archives witness to his faithful and loyal labours. His many and important publishing enterprises testify also to the irrepressible public spirit which has been signally manifested in all his work. Stimulated by this patriotic ardour, some twenty years ago he threw himself into educational publishing with the motive of adapting the school-books of the country to the educational wants and national predilections of the people. The earliest outcome of this project was the "General Geography," prepared by the present Deputy Minister of Education of Ontario,

soon followed by the introductory "Easy Lessons,"—text-books which have long enjoyed the favour and patronage of the schools.

The work before us takes the place of the latter book, which we learn it would have earlier replaced but for the delay caused by the thoroughness of the revision to which the new book has been subjected. The place of the 'General Geography,' is to be immediately taken by a new and 'Advanced' text-book, of a high character, which Mr. Lovell is about to issue. The most cursory glance at the 'Intermediate,' will assure anyone that examines the book that it is the product of faithful and intelligent labour; while its attractive mechanical appearance will instantly prepossess the critic in its favour. A closer acquaintance with the work will deepen this impression, and increase the satisfaction with which the peruser of its contents will examine its pages. If we entertain an opinion that would qualify our unstinted commendation of the book, it is that that would lead us to give preference to the ordinary literary form of book construction over the catechetical, which has been adopted by the writer. The question and answer form, in our opinion, is apt to lead the instructor to impart his knowledge in splinters of fact rather than in the convertible pulp of a simple and enticing narrative. Still, for elementary classes, the form into which the book has been cast may be best suited; and the writer has admirably succeeded in the choice and statement of facts which he has embodied from the interesting fields of geographical information. As an epitome of elementary geography for Canadian schools, the work, in our opinion, is wholly satisfactory. Within its compass we have just that amount and variety of matter which must make the book thoroughly acceptable to the teacher, and easy of digestion by the pupil. The page is a clear, clean, and inviting one, and the maps and illustrations are features of excellence which call for spontaneous recognition. The book will doubtless receive a large measure of favour, and the instant and hearty commendation of every one examining it interested in education in Canada.

EDITORIAL NOTES.

TOPICS OF THE TIME.

THE question how best to impart moral instruction in schools has recently been under discussion by the members of the School Board of Birmingham, Eng. The decision came to by that body was to instruct the teachers to give two lessons a week, of a conversational character, on such subjects as the following: Obedience to parents, honesty, truthfulness, modesty, temperance, courage, kindness, perseverance, frugality, thrift, government of temper, courtesy, unselfishness, and kindred moral duties,—the lessons to be of half an hour each, and to be enforced by illustrations drawn from daily life. An amendment was proposed to the effect that teachers should be allowed to draw their illustrations from the Bible, but it was voted down—a member, the Rev. Mr. Dale, thus expressing the opinions of the majority. He (Mr. Dale) believed that the code would promote the moral health and vigour of the children, and that ultimately religious faith itself would be benefited by it. The manner in which morals were commonly taught, when morals were associated with religious instruction, had rather emasculated and enfeebled moral life by the exclusive appeal that had been made to the highest religious motives in order to enforce ordinary moral duties. He was prepared, he said, to maintain that there was a clear distinction between teaching morals and teaching religion. There were many men who recognized the obligation of honesty, and truthfulness, and of temperance, who rejected Divine revelation. He admitted, however, that an appeal to revelation added tremendous sanction to the ordinary moral duties, but he argued that neither morality nor religion was a gainer from an incessant appeal to religious motives. He desired his child to have a generous love

of goodness, not merely because God had commanded it, but for its own sake. There is much to be said in favour of Mr. Dale's robust yet thoughtful views on this subject. We are perhaps too apt to enforce our admonitions to the young in the jargon of Pharisaism or in the goody phrases of Sunday-school literature. A kindly, earnest talk in the phraseology of the play-ground would oftentimes be more impressive and effective. Still, where no objection is raised on conscientious grounds to the reading of the Bible in the school, the simple and pointed moral instruction of the teacher may well and profitably be enriched from the maxims of the Great Master.

THE question of Clerical *versus* State Lay Education in France is still wildly exercising the Gallican mind, and the agitation, we notice, is now spreading to Belgium. The intolerance and animosity of the Church is unhappily now being matched by the intolerance and animosity of the enemies of the Church, and what the outcome of the disturbance is to be no one can well forecast. So impassioned are the parties in the affray, and so hopeless seems the appeal to calm reason in France, that spokesmen on both sides of the quarrel are now appealing to England for a hearing on the merits of the burning question at issue. Those of our readers who may be interested in the matter will find the case best stated for the Clerics in the extracts given in the recent English newspapers from a pamphlet written by M. l' Abbé Martin, and for the Liberals in the article in the September number of the *Nineteenth Century*, by M. Edmund About. On the surface the Government Bill, introduced by M. Jules Ferry, Minister of Education, seems a commendable attempt on the part of

the State, to secure efficient machinery to advance the best interests of education in the country with such proposed enactments necessary to enable the Government effectively to control and direct the machinery. The article in the Bill that has roused the Clerical party to frenzy is that known as No. 7, to the following effect: "That no person belonging to an unauthorized religious community is allowed to govern a public or private educational establishment of whatsoever order, or to give instruction therein." This, it has been assumed, and no doubt rightly, is a direct slap at the Ecclesiastical schools, with the idea of repressing or abolishing them. The *raison d'être* of this is the political animus of the Jesuits towards the Republic and the well-known sympathy of the Church with the Empire. The further incitement to place the Priests' schools under the ban of the law is fear at the growing power of the religious orders and uneasiness felt at the increasing popularity of institutions conducted by the worst enemies of the Republic. It is to be feared, however, that the passage of the anti-Jesuit clause in the Bill will not help the cause of undenominational education, while this borrowing of the weapons of intolerance and repression from the Jesuits is not apt to commend itself to many liberal and fair-minded men. But its becoming law is looked upon as a prime political necessity in the interest of the State and the perpetuation of Republicanism, as well as in the interest of the large and growing class in France that desires emancipation from the mental servitude imposed by the Church.

The number of unauthorized congregations which the new law would disqualify from public teaching includes some fifty establishments conducted by about 1,500 Jesuits. These religious bodies are unauthorized in the sense that their associations have no corporate rights and hence they cannot be proceeded against as public bodies. Of course this small number of irregular teachers may seem insignificant against which to hurl the power of the State, but it must be remembered that their cause is championed by the

whole Clerical community of France and this is an array not only strong enough to give the Government trouble in regard to the immediate question at issue, but is one that is also unceasingly active in its efforts, politically, to undermine it. In view of the latter circumstance the Government's jealousy of the Clerical power is not to be wondered at, though we cannot but regret that the Republican leaders should resort to an act so impolitic and anti-Liberal as this repressive measure against the Church.

ON September 10th, a meeting of persons interested in the cause of religious education was held at the City Terminus Hotel, London, Mr. Ellery in the chair. The chairman, in his opening remarks, explained that the meeting had been convened mainly at the instigation of some gentlemen whose minds had been sorely vexed by the lamentable instances which had been brought to their knowledge of the neglect of Biblical or Scriptural education in Board Schools. After some discussion on the subject of School Board education and Biblical knowledge, it was resolved unanimously: "That this meeting is of opinion that it is of the highest importance that children of both sexes should have instilled into their minds the first principles of Christian morality by means of Bible lessons, and that such lessons should be given in all elementary schools throughout the kingdom." It was further resolved, "That an association should be at once formed, entitled the Christian Education League, for the purpose of securing the return of such candidates for School Boards as were in favour of religious education." A preliminary committee was then chosen, and Mr. W. G. Kent was appointed Secretary, and instructed to communicate with certain influential gentlemen, with the view of placing the League on a sound foundation, and enabling it to carry out the programme.—*The Schoolmaster.*

WHEN any branch of legitimate study is notoriously unpopular in an educational institution, it simply proves that it is not properly

taught there. When students stand appalled at the sight of the Greek alphabet, and during all their course never get over their fright, it proves that some teacher should be rotated out, and some other teacher rotated in. A good teacher will make whatever he teaches interesting, be it Greek, German, or Gaelic. It is not so much a question in our schools What shall we teach? as How shall we teach? Some teachers will discipline the mind more in teaching practical cookery three months, than others would in teaching Chinese or Choctaw all their lives. A pupil recently examined could repeat all the rules in the arithmetic perfectly, but utterly failed when asked how much a turkey would cost, weighing $17\frac{3}{4}$ pounds dead, at $6\frac{1}{2}$ cents per pound alive.—*Ex.*

It often occurs to us of what importance it would be if some time were devoted in the schools to the practice of short-hand writing, familiarity with which is every day becoming more valuable and necessary. In some schools the time given to the writing-lesson is absorbed by elaborate practice in ornamental penmanship, usually an unnecessary waste of time and patience which would be more serviceably expended in acquiring some practical knowledge of phonography. For literary purposes, and indeed for most of the ordinary purposes of writing, the use of short-hand is of great moment,—the economy in its use over the present system of writing out in full, being a matter instantly verifiable by any one familiar with the system. To the student in making rapid notes of lectures, and in transcribing passages from text-books for future reference and use, acquaintance with phonography would be of great assistance, while in his future career he would find it highly serviceable and profitable to him in whatever occupation he is to engage. Some years ago phonography was made the subject of reference in a Presidential address before the British Science Association, in some such words as the following:—

“It seems strange that while we actually possess a system of short-hand by which words can be recorded as rapidly as they can be spoken, we should persist in writing a slow

and laborious long-hand. It is intelligible that grown-up persons who have acquired the present conventional art of writing should be reluctant to incur the labour of mastering a better system; but there can be no reason why the rising generation should not be instructed in a method of writing more in accordance with the activity of mind which now prevails.”

The utility of short-hand, indeed, is every day becoming more and more an admitted fact, and if the system could be introduced into the schools, as a part of the writing lesson, we are certain of its great advantages to those who can acquire facility in writing it. To become a short-hand writer is not, of course, an attainment to be jumped at. Like other acquirements the “royal road” to it is through application and perseverance. “Two things,” it has been said, “are especially necessary to the complete attainment of short-hand; namely, first, to *begin*, and next, to *go on* with its acquirement and practice. The learner must, as it were, *grow* into the use of short-hand writing, pretty much in the same way that he advances to perfection in any other every-day attainment.

THE Annual Games in connection with the Toronto Collegiate Institute, came off on the Toronto Lacrosse Grounds, on Friday the 3rd instant, with great *eclat*. A lively interest was manifested in the proceedings by over 1,500 spectators. His Worship the Mayor presented the prizes. The Band of the Queen's Own Rifles was in attendance.

No student of English Literature can now complain, on the score of expense, that he is precluded from adding to the resources of his library, as he can now get the cream of England's contemporary thought in the great English serials, the *Nineteenth Century*, the *Fortnightly*, and the *Contemporary Review*, in American reprints, at twenty cents each, per month.

THE following are the Scholarship winners at the recent Examinations at the University of Toronto:—

Classics—Mr. E. J. Harris, of Woodstock Literary Institute.

Mathematics—Mr. D. Francis, of Collingwood Collegiate Institute.

General Proficiency—Mr. C. W. Mulloy, of Berlin High School.

TRIUMPHS OF THE ENGLISH LANGUAGE.

BY J. G. LYONS.

1. **N**OW gather all our English bards, let harps and hearts be strung,
To celebrate the triumphs of our own good English tongue ;
For stronger far than hosts that march with battle-flags unfurled,
It goes with FREEDOM, THOUGHT, and TRUTH, to rouse and rule the world.
2. Stout Albion learns its household lays on every surf-worn shore,
And Scotland hears its echoing far as Orkney's breakers roar ;
From Jura's crags and Mona's hills it floats on every gale,
And warms with eloquence and song the homes of Innisfail,
3. On many a wide and swarming deck it scales the rough wave's crest,
Seeking its peerless heritage—the fresh and fruitful West ;
It climbs New England's rocky steep, as victor mounts a throne ;
Niagara knows and greets the voice, still mightier than its own.
4. It spreads where winter piles deep snows on bright Canadian plains,
And where on Essequibo's banks eternal summer reigns :
It glads Acadia's misty coasts, Jamaica's glowing isle,
And bides where gay with early flowers green Texan prairies smile :
It tracks the loud, swift Oregon, through sunset valleys rolled
And soars where Californian brooks wash down their sands of gold :
5. It sounds in Borneo's camphor groves, on seas of fierce Malay,
In fields that curb old Ganges' flood, and towers of proud Bombay ;
It wakes up Aden's flashing eyes, dusk brows, and swarthy limbs ;
The dark Liberian soothes her child with English cradle hymns.
6. Tasmania's maids are wooed and won in gentle English speech ;
Australian boys read Crusoe's life by Sidney's sheltered beach ;
It dwells where Afric's southmost cape meets oceans broad and blue,
And Nieuwveld's rugged mountains gird the wide and waste Karroo :
7. It kindles realms so far apart, that, while its praise you sing,
These may be clad with Autumn's fruits, and *those* with flowers of Spring :
It quicken's lands whose meteor lights flame in an Arctic sky,
And lands for which the Southern Cross hangs orb'd fires on high,
8. It goes with all that prophets told, and righteous kings desired ;
With all that great apostles taught, and glorious Greeks admired ;
With Shakespeare's deep and wondrous verse, and Milton's loftier mind :
With Alfred's laws, and Newton's lore,—to cheer and bless mankind.
9. Mark, as it spreads, how deserts bloom, and error flies away
As vanishes the mist of night before the star of day !
But grand as are the victories whose monuments we see,
These are but as the dawn, which speaks of noontide yet to be.
10. Take heed, then, heirs of Alfred's fame, take heed, nor once disgrace
With deadly pen or spoiling sword our noble tongue and race.
Go forth, prepared in every clime to love and help each other ;
And judge that they who counsel strife would bid you smite—a brother.
11. Go forth, and jointly speed the time, by good men prayed for long,
When Christian states, grown just and wise, will scorn revenge and wrong ;
When Earth's oppressed and savage tribes shall cease to pine or roam,
All taught to prize these English words—FAITH, FREEDOM, HEAVEN, and HOME.

—Selected.

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE.

OCTOBER, 1879.

EDUCATION AND CO-EDUCATION.*

BY PRINCIPAL GRANT, D.D., QUEEN'S UNIVERSITY, KINGSTON.

BECAUSE the aims of your Association are modest, and therefore suited to the present condition of popular sentiment with regard to Education for ladies in this part of Canada, because they are in the right direction, and promise to lead to greater things, I had much pleasure in acceding to your request to give the Inaugural address of this year. The higher education of women and such various questions connected with it as co-education in the recognized colleges of the country, and the fitness of women for professional and industrial careers other than those to which they have been usually limited, are now discussed everywhere. Sides have been taken, with more or less vehemence, and as usual in the heat of discussion extravagant language has been used all round. We may classify the positions taken on the whole subject into the customary three, Extreme Right, Extreme Left, and Middle. The Right wing includes those

who resent all interference with use and wont. Departure from traditional views of education and life by any woman they associate with, a tendency to part the hair at the side, and with lax views of morals and religion. They hurtle the vigorous words "unmaidenly," "unwomanly," "indelicate," at the innovators, well aware that such words are offensive, perhaps not so well aware that they could be easily retorted against themselves, were retorts desirable. Is it more unwomanly to walk to college than to ride to hounds? More indelicate to sit in the same room with young men listening to lectures on philosophy or science, for two or three hours in the day time, than to dance fast dances with them all night? More unmaidenly to practise the healing art than to cultivate the art of husband-hunting? Is it less unworthy of the sex to know something than to know nothing, to do something than to do nothing, to cultivate faculties than to dwarf them?

* The Inaugural Lecture of the Ninth Session of the Montreal Ladies' Educational Association. From the *Canadian Monthly* for November, by permission of the publishers and the author.

"My daughter would like to be a physician," said a lady to her medical man. "I trust, madam, that you will sanction nothing so indecent," was the immediate reply. With gentlemen the question has now got beyond this style of argument; but it is still the favourite with a few bores and not a few ladies. It is the initial stage of argument with which every step in the progress of the race has been met; and as it is admirably suited to hurt the feelings of women, I have little doubt that it will be used for some time yet against any step in advance that women may take. As usual, the best allies of the Extreme Right have been the Extreme Left. Their loud cry of "Woman's Rights" has led them to forget that there is such a thing as Woman's Duties; their contention that "there is no sex in mind" to forget that there are undoubted mental differences corresponding to the physical differences between the sexes. I have no desire to allude to the extravagances in speech and conduct of which they have been guilty. Let the scant justice which women long received serve as their excuse. The Middle school includes all who desire to see the same thought given to the education of girls that has hitherto been given to the education of boys. What that may involve or result in, they are not equally clear about. Neither are they agreed as to the practical steps that should be taken in the matter. This party has its Right Centre, and Left Centre, and Cross Sections. "The air is thick with schemes for the education of women," some advocating one scheme and others another. But this very variety shows how the question has advanced. Where there was formerly indifference or contempt, interest and intelligence are everywhere manifested, and these ensure that right conclusions shall eventually be reached. For the improvement in England much is due to

Her Majesty, the late Prince Consort, and the Royal family,—our own gracious Princess especially. It was owing to the Queen's insistence that the first vote—the modest vote of £30,000, which has now swelled to between one and two millions—for the promotion of Common School Education in England was pressed upon Parliament. Her Majesty founded the first scholarship in Queen's College, Harley St., the first public institution opened in England for the higher education of girls. And when, in 1871, a society was formed for establishing on a comprehensive scale good secondary schools where girls could be prepared for such colleges as Girton, Newnham Hall, Cambridge, and others, the Princess Louise consented to be its first President. Her Royal Highness did as much for the true education of girls in Canada by the wise words she spoke on the occasion of consenting to become the Patroness of your Association—words which have been read from the pulpit, and which should be written in letters of gold in your annual reports; and perhaps not less by the first walk she took from Rideau Hall into Ottawa and back again, sustained only by thick-soled boots and a memorable little cane.

The ground on which I advocate a thorough mental training for girls similar to that which is thought essential for boys is the equality of the sexes. That ground is given to me in the first chapters of Genesis. The account of our origin given there assigns to man a dualistic constitution both as to nature and sex. As to nature, it is two-fold, matter and spirit. Matter-day-Saints, as Matter-Evolutionists have been called, profess to evolve consciousness and conscience from protoplasm, thought from no thought, dominion over the world from the elements of the world. And in all ages ascetics have dishonoured the body. Both are wrong. Man's na-

ture has two sides. Both sides are from God, and both are sacred. As to sex, we have also a dualistic conception of humanity. It is declared that two sexes are needed to make up the perfect type. "Male and female created He them." Here is the familiar truth of the equality before God of man and woman, a truth unrecognized by any other religion, but imbedded in the deepest stratum of the Christian revelation. They are different but equal, and the two make up the ideal one that was in the mind of God when He created them, and that received full expression in the Son of Mary who combined in His character all that is excellent in both. Tennyson, speaking of the relation between man and woman, caught this true conception, and so writes more grandly than Milton.

Here is Milton's view:

"For contemplation he and valour formed,
Forsofness she, and sweet attractive grace;
He for God only, she for God in him."

Tennyson, in his *Princess*, strikes a far higher note:

"For woman is not undeveloped man,
But diverse. . . his dearest bond is this,
Not like to like, but like in difference;
Yet in the long years liker must they grow;
The man be more of woman, she of man;
He gain in sweetness and in moral height
Nor lose the wrestling thews that throw the
world;
She mental breadth, nor fail in childward
care,
Nor lose the childlike in the larger mind;
Till at the last she sets herself to man,
Like perfect music unto noble words."

The figure in which the distinct creation of woman is Biblically revealed is very expressive. Much has been written on it; but nothing that seems to me better than the words of the old commentator, Matthew Henry, I think. "She was taken, not from the head, for that would have indicated that she was to rule over man; not from the feet to be trampled on by him; but from his side, under his arm and nearest his heart, to show that she

was to be loved and protected by him." In God's sight the two are one—

"Each fulfils

Defect in each, and always thought in thought
Purpose in purpose, will in will, they grow,
The single, pure, and perfect animal;
The two-cell'd heart, beating with one full
stroke,
Life—"

There! you have just proved what I have always asserted, exclaims one of my friends on the extreme right. What need of a woman learning Greek or Mathematics? Her end and aim is marriage; her kingdom, a happy home; her subjects, little children clinging about her knees. Exactly so; and just because her relation to man is so close, just because her sphere is so important to man's highest welfare is she entitled to the best that education can do for her? Because of her relation to man, and because of what she is in herself, a thorough mental training is due to girls. These are the two grounds into which the first—the equality of the sexes—divides itself.

I. Because of her relation to man.

It is interesting to note how a great practical statesman, educator, and born conservative like Stein saw the truth on the subject from this point of view. In a letter to Frau v. Berg, he writes: "I think the lot of women in the upper classes of society is less happy than that of men; the latter are generally educated for definite vocations, and live in the discharge of them. The former are seldom educated for the vocation intended for them by nature, that of mother and educator. We develop in them only the vague wish to please, and instruct them in the material means of doing so, and their whole life is devoted to an empty struggle for universal admiration, which is never attained, and an observance of a multitude of aimless duties. Their whole system of ideas consists of incoherent fragments of opinions,

usages, and judgments of the great world, and everything concurs to estrange them from their one true vocation." As his English biographer, Professor Seeley, remarks: "This last reflection is rather curious, when we consider that the standing argument of conservatives in female education is that women ought to be educated for their natural vocation, that of wife and mother. What strikes Stein as the fault of the established system is precisely that they are *not* educated for this." The same thought struck the first Napoleon, a man far greater as a practical statesman than even as a soldier. One day he said to Madame Campan: "The old systems of education seem to be worth nothing. What is there wanting in order to train up young people properly in France?" "Mothers!" was the reply. "Well," said he, "therein lies at once a complete system of education. It must be your endeavour, Madame, to form mothers who will know how to educate their children."

The great majority of women will be wives and mothers. Their influence in both relations is paramount. In the latter, there is no one to compete with them for the first ten years of the child's life, and in that time more is done towards the formation of character than in all the rest of life. Seeing that this enormous power must be in their hands, have we educated them so that it may be used to the best advantage? As a rule, we have not. Their education has been partly received in society and partly in the boarding-school, and in both cases erroneous ideals and aims have been set before them. A native lady in one of the zenanas visited by Miss Carpenter in India, exclaimed, with longing and pathos that revealed her own true heart, "your existence is that of a river bearing blessings wherever it runs, whereas ours is an enclosed well or stagnant pool." The Hindoo fancied

that all Englishwomen were like Miss Mary Carpenter. She was not aware that in many circles in England such a lady would be called "blue," or some other epithet still more vigorous, and that the objects set before the average young Englishwoman in good society are not much more elevated than those thought most highly of in the zenana. Last century Captain Cook found the hearts of the South Sea Island women set upon beads and feathers. Does not society teach our young ladies to estimate such things as the chief good? The form varies, but the thing remains the same. The ideals of savages are their ideals. Distending the delicate rim of the ear, the cartilage of the nose, and the lower lip, must go under one category. The one practice is fashionable with us, the second with Hindoos, the third with the ladies of Africa. Compressing the head, the waist, and the feet out of shape are alike useful and ornamental. The Flatheads adhere to the first, Christians to the second, and the older civilization of China to the third custom. When I think of the varieties of dress, head-gear, and ornamentation that have been thought fashionable among us in this century, and of all that is involved in the disproportionate degree of time, thought, and money bestowed on these things, of the poor and false ideals set before our girls in good society, of the dreary, aimless, brainless round of exhausting frivolity to which they are doomed, I cease to wonder that there are so many unhappy marriages, and that the race should be so slow in learning the alphabet of Christianity. For Rousseau did not exaggerate in that much quoted word of his in the *Emile*; "Men will be always what women please; if you wish men to be great and good, teach women what greatness and goodness are."

And what shall I say of most of the boarding-schools that profess to give a

fashionable education? Not much, for their supply is according to the demand. It is of no use in any case to rail against outcome. We must go deeper. The popular idea is that any lady, especially if she be a widow not so well off as she once was, can keep a boarding-school, and if she brings in teachers to give instruction in French, drawing, music, dancing, deportment, and fancy-work, what more can be wanted? Scraps of history and science may be thrown in, but as to the systematic study of anything, or methods of study, or mental training, it is seldom dreamed of. Why should it, if insipidity of mind and apathetic elegance of manner be considered more valuable? There has been improvement, but I fear that the complaint made by a French reviewer, a generation ago, is still too well-founded: "Philosophers never conceived the idea of so perfect a vacuum as is found to exist in the minds of young women who are supposed to have finished in such establishments. If they marry husbands as uninformed as themselves, they fall into habits of indolent insignificance without much pain; if they marry persons more accomplished, they can retain no hold of their affections. Hence many matrimonial miseries, in the midst of which the wife finds it a consolation to be always complaining of her health and ruined nerves." Were it not for the love that God has implanted in the hearts of women, and love, instead of being blind, is that which gives true insight, were it not for those instincts which are the inherited thought of the race, the results of such education would be unspeakable. As it is, they are bad enough for women themselves, their children, and the race. Their own health and the lives of their children are often sacrificed from ignorance of elementary knowledge of anatomy and physiology; and, because of their prejudices and wrong

ideas, they give a twist to the moral and intellectual nature of youth from which it never completely recovers. We are now finding out that all we have done for India avails nothing, simply because we have not reached the women. The question with statesmen and missionaries is, how shall we educate or influence the women of India? Had we not better begin nearer home?

Speaking of things as they are to-day, and not as they were a quarter of a century ago, let us thankfully acknowledge that improvement both in the physical and mental training of women has been and is being gradually effected. Girls are more encouraged to take active exercise in the open air, to move about freely without thought of the posture-master, and to lead the same out-door life as boys. And blessed be the man or woman who invented or made fashionable the game of lawn-tennis. No one can excel in it dressed in tight stays or pull-backs. I have indeed seen a young lady try to play the game so dressed, but shall not attempt to describe the ridiculous figure the poor creature cut as she hopped from court to court like a "hobbled" donkey or a very lame and limp duck. But she was the sad and sorrowful exception that proves the rule. Physical invalidism is now not thought "lady-like." Perhaps Muscular Christianity has helped to dispel that idiotic notion. And for a brief comprehensive account of what has been done in Europe and America in the way of giving women means and opportunities of mental training, particularly as regards the secondary education that leads up to the University, and also in the way of opening the avenues that lead to professions from which custom, at least, formerly excluded them, let me refer you to a thoughtful paper by Mr. McHenry, Principal of the Cobourg Collegiate Institute, on "The Higher Edu-

cation of Women," which you will find in the Report of the proceedings of the Toronto Teachers' Convention.

I would like to face the real question that is at the root of all the present discontent and present movements. What kind of mental training should be given to women? Should it be substantially the same as that given to men, or should it be substantially different? In order to answer this, we must first ask, what is the great object of education, whenever we get beyond that familiarity with the three R's which opens to us the gates of knowledge, and with which the mass both of men and women must for a long time rest content? It can never be too much insisted on that the aim of education is not to store the mind with facts, but to train the mind itself; to develop it in the natural order and relations of its faculties, and so aid in developing character to all its rightful issues. That is a good education which enables us to look at things in the clear light of reasoned thought, and to consider impartially all questions with which we must deal instead of seeing them under the false colourings and refractions of prejudice, emotion, or individual temperament. Education should guarantee not merely the possession of truth, stumbled into by us somehow or other, but the knowledge of how to proceed so as to attain truth, and the knowledge of what is and what is not attainable. We must be able to give a reason for the faith that is in us, for our belief that it is true, not that which has been called woman's best reason—I believe that it is just because it is—but a reason that we come to, as the result of articulated thinking. We are all biased in different ways. And that is the best education which delivers the mind from bias, sets it in *equilibrio*, and enables it to act normally and vigorously. Now, it has always been thought a matter of the last importance to give such an

education to men. Our methods may have been defective, but such an aim has been always professed. The whole structure of our magnificent educational systems has always had this in view. Every improvement suggested is with the view of securing this more completely.

The first question then to be asked here is, do women need such a mental training as much as men? Unless mind in women is something essentially different from what it is in men, that is, unless they do not possess minds at all, but something else they call their minds, there can be no hesitation as to the answer. We may go further. There are physiological reasons to show that women require a sound mental training more imperatively than men; and that therefore no obstacles should be placed in the way of those who are struggling to obtain its advantages.

Mr. Herbert Spencer points out ("The Study of Sociology," p. 374) that there is a somewhat earlier arrest of individual evolution in women than in men, and that this shows itself in their physical and mental constitution. "The mental manifestations have somewhat less of general power or massiveness; and beyond this there is a perceptible falling-short in these two faculties, intellectual and emotional, which are the latest products of human evolution—the power of abstract reasoning and that most abstract of the emotions, the sentiment of justice—the sentiment which regulates conduct irrespective of personal attachments, and the likes and dislikes felt for individuals." If this be so, and probably most people will admit the fact, though they may not necessarily accept the cause assigned by Mr. Spencer, it follows that the best mental training that can be had is even more indispensable in the case of women than of men. Women are already handicapped by nature. Is it necessary that they

should be, in addition, artificially handicapped by unwise restrictions, by the foolish customs and opinions of a half or quarter educated society?

It being granted, then, that the best education is needed by women, the next question is, where are they to get it? Well, it is not at all likely that the great colleges and universities that have been built, equipped, and endowed in the course of centuries by pious founders and wise States, and that have hitherto been used by young men, can be duplicated at once. That is out of the question. Even if duplicates were provided, such institutions would have as a rule empty benches for many a day. We may be quite sure that we shall have no "ugly rush" of ladies seeking higher education. Hence the so-called "Ladies Colleges," that are to be found in various parts of the country, must accommodate themselves to the average condition of female education, and can afford to supply only those branches and "accomplishments" that the majority demand. Such adventure institutions, unendowed and possibly aiming at annual dividends, cannot possibly give such an education as the old recognised institutions. We are thus driven to ask, why should not ladies, in search of a sound education, seek a regular college and university training?

Why not? It has been said or hinted that grave evils would result from allowing young men and young women to attend the same college. There is no evidence to this effect. The evidence that we have is all the other way. Surely by this time we have got far ahead of the gross idea that woman's virtue depends not on herself, her modesty, self-respect, and principle, but on thick veils, padlocks and duennas. It is best to imitate nature, and nature by sending boys and girls to the same family has ordained that they should grow up together in mu-

tual honour and helpfulness. As a rule, boys are best when they have sisters, and girls are best when they have brothers. The two sexes now attend the same Common Schools, High Schools, Collegiate Institutes, and Normal Schools, and no one dreams of there being anything improper in their so doing. And, who would not rather trust them when they have attained the age of mutual self-respect, than in the years immediately preceding? Of course certain practical regulations would be needed, and these could easily be made; such as, not allowing both sexes to board in the same house, and, in colleges where residence is enjoined, having a separate hall with a lady at its head; sitting on different benches in the class-rooms; perhaps entering or leaving by different doors; though, in my opinion, the fewer the regulations the better. The essential idea of college life is that students have attained to years of understanding, and that they are to be trusted. Professors who cannot manage students on this principle have mistaken their vocation. And students who are strangers to it should be taken or sent home as soon as possible. So far as there is evidence on the subject, it is to the effect that the influence on young men of the presence of female students is good and only good, and *vice versa*.

It is asked sometimes, with the alarm begotten of profoundest ignorance, are the subjects of a regular college course suited to ladies? A simple enumeration of these is sufficient to dispel the alarm. Take the old or any proposed new curriculum, and what subject in it is in any way objectionable? Language, literature, mental philosophy, mathematics, physical science, natural history, at which does male or female modesty or incapacity take alarm! Besides, all these subjects need not be taken by every student. Every college now allows a

great measure of liberty in this respect. More and more, too, options are being allowed. Very radical proposals are being made in Britain for bifurcating or trifurcating the subjects required for a degree. And I do not see why some subjects considered specially desirable for ladies should not be allowed to rank in place of others not considered so desirable. A thorough knowledge of music, for instance, might stand for Greek or senior mathematics. As to regularity of attendance, here, too, the college is not subjected to the rigid rules of the school. In most colleges it is considered sufficient if actual attendance is given from two-thirds to four-fifths of the session.

But is not excessive study injurious to young women? Very, and to young men likewise. Many of the noblest young men I have known have killed themselves. The best are apt to injure themselves. No fear of the idlers. But we do not, therefore, exclude diligent and talented young men from college. Bad results flow chiefly from entering college too soon or insufficiently prepared in the secondary school, from 'cheap and nasty' boarding-houses from the too numerous examinations now in vogue, and from over anxiety to attain honours. These causes, the last excepted, should and could be easily guarded against. A moderate amount of regular study is physically and mentally beneficial to both young men and women. No one doubts this as far as men are concerned, and I would refer those who want testimony for it in the case of women, to an article in the *Contemporary Review* of January, 1878, by Frances Power Cobbe, on "The Little Health of Ladies." It is not work but worry or mental vacuity, not regular but irregular study, or study under conditions prejudicial to health, that injures.

Besides, it is a mistake almost ludicrous to suppose that excessive

study is required for the ordinary B.A. examination. The knowledge represented by the possession of a pass degree, no matter from what university, is exceedingly moderate, though the value of the training received may be said to be incalculable. There is nothing like the regular university course. It is adapted to average minds, and confers benefits on the greatest.

I know of no reason that can be urged against women studying in our recognized colleges that has not been urged from time immemorial against every step in advance taken by the race, against every reform that has ever been made in the realm of thinking or of action. Of course this reform will come slowly. The mass of social prejudice to be overcome is enormous, and women are peculiarly sensitive to social opposition. At first, average young men in our colleges will be subjected to rather an unfair competition, for the young women will be a select class, chiefly those who survive the operation of a very rigid natural selection. But in time this will be righted.

II. Woman should have every possible opportunity of obtaining a sound mental training because of her relation to man and the importance of her position as a probable wife and mother. But to consider woman as merely a satellite of man—or, as Von Hartmann respectfully calls her, "a moral parasite of man"—is a caricature of the truth that man is her natural head and protector. She is "a primary existence," owes responsibility directly to God, is bound to cultivate her faculties for her own sake, and has, in many cases, to fight her own way through the world. It is impossible to overlook the fact that there is an immense number of unmarried women, and women who are not likely to be married, or who have no disposition to waste their lives in frivolity or idleness until they meet with some man

whom they can honestly marry. This class is increasing, and as civilization progresses it is sure to increase still more. The law of all progress is that the simple and homogeneous is, through a process of continuous differentiation passing into the complex and heterogeneous. Where woman is the property, and the servant, or plaything, of man, there is no woman's question. All women will be pretty much alike, and all will be provided for after a fashion. Whenever she is really recognised as his equal, variety will be seen in women as in men. All savages are alike. Converse with one savage and you have conversed with the tribe. The more advanced the civilization the greater variety among individuals. There is a higher unity, but the uniformity has gone. In an advanced civilization, then, you will no more be able to class all women as simply wives than to class all men as simply husbands. There will always be some kinds of work that men can do best; and other kinds that women can do best—but no longer can all the honourable professions be reserved for men. We may discriminate on the ground of ability or fitness, but not on the ground of sex; and before we can decide as to ability a fair field must have been granted. Here, too, the question is solving itself. Gradually women are finding their way into new employments. We see them in railway and telegraph offices, and hear of them at bank meetings. Thousands are employed as teachers, copying-clerks, type-setters, writers, artists, house-decorators, and thousands more might be employed in dry-goods and other establishments. The medical profession has been thrown open to them in Great Britain and in the United States; and Miss Cobbe believes, and with reason, that there will soon be women-doctors and women's hospitals, attended by women-doctors, in every town in the United Kingdom.

All the nineteen British medical examining bodies are now allowed to confer their licenses or diplomas upon women. In Canada the Medical Faculty connected with Queen's University has decided to open classes for women next spring, the matriculation examination and the curriculum to be the same as for men. Of course, this means double work for the Professors, for it is generally recognized that co-education is out of the question in medical and surgical studies. Naturally enough the Professors were unwilling to undertake so much additional labour, but they could not resist the appeals made to them in letters from young women who felt impelled to devote themselves to the profession, and who were unwilling to exile themselves from their own country in order to get the necessary education. Large classes are not expected, but I understand that a sufficient number have engaged to attend to make the experiment worth trying.

But the question of higher education should be looked at apart from professional education and apart from the employments or careers to which it may lead. Culture is a good in itself, and should be sought for its own sake. If it be true that "in this world there is nothing great but man, and in man nothing great but mind," then to neglect the proper cultivation of the mind is a sin against our highest interests, and inexorable nature forgives no sin. What would any man who has received a thorough University training barter it for! He may have sought it at first not for its own sake, but because by that avenue only he could enter some calling that would give him honourable position as well as bread and butter. But having obtained a measure of culture, he usually values it aright. Unless he is an incurable Philistine, he has been taught to know himself, his intellectual strength and

intellectual weakness, the meaning and range of his powers, and the impassable walls that hem him in. He has learned to be modest, and to be confident. He looks through appearances to the heart of things; and refuses to bow down to the idols that lead the crowd astray. My only astonishment is that all such men do not resolve, as a matter of course, to give to their children that which has been their own chief solace, that which has refined and strengthened their own natures, making them independent of the accidents and changes of time by giving them unfailing resources within themselves. Why should I deny my son the highest possible training of which he is susceptible, even though he may have to earn his bread all his days by the sweat of his brow? Why should I deny my daughter the same true wealth that cannot be taken away from her, even though I see no prospect for her but to be a sempstress? If their external lot is to be circumscribed and their fare scant, the more reason that they should have compensations in themselves. Have worthier conceptions of human nature. Set high and not poor ideals before your children, and they will seek to attain to them. We talk on Sundays of the dignity of human nature, of the worth of the soul, of the sufficiency of character; and throughout the week we are materialists pure and simple. The object set before our sons is to get money; and the prize dangled before our true-hearted girls' eyes is a husband with money. We do boys and girls grievous injustice. Too often we succeed in debasing them. They owe to us their stunted natures, their worldly minds, and the general atheism of their lives, veneered with the form of religion prevailing in their day. Can we not believe the great Teacher's words, "the Kingdom of God is within you," and so believing, care for that which is within

rather than for that which is without?

We should, I say, value culture for itself, and not for the career to which it may lead, or the external advantages it may secure. But here, as in every other similar case, the first leads to the second. What the world needs above everything else is well-qualified workers in every department. My great difficulty is, not to find positions, but to find persons qualified to fill them. Work is always needed to be done. But who shall direct us to honest and competent workers? They are at present establishing a new industry in Halifax, and they have sent two of their leading merchants to roam over the Great Republic to try and find some one fit to be entrusted with its management. I understand that it was difficult to find a person qualified to fill a situation in Montreal worth \$25,000 a year. There are Professorships vacant in our Universities every year, and men competent to fill them are not easily found. When a lady applies to me for a governess, though I know of many out of work, I am thankful to find one whom I can recommend. Principals of Ladies' Colleges assure me that their difficulty is the same. We need not be alarmed at the spread and improvement of education. What the world needs, and greatly needs, is not less of it, but more and better. Depend upon it, the well-educated man and woman can always get work to do, and food and raiment, at least, as recompense. They ask for no more. In themselves they have a kingdom and an inexpugnable fortress into which they can at all times retreat, where no storms beat, and no famine threatens. "Not by bread alone is the life of man sustained; not by raiment alone is he warmed," writes a seer who did much for the higher life of England, in the first half of our century, "but by the

genial and vernal inmate of the breast, which at once pushes forth and cherishes; by self-support and self-sufficing endeavours; by anticipations, apprehensions, and active remembrances; by elasticity under insult, and firm resistance to injury; by joy and by love; by pride, which his imagination gathers in from afar; by patience, because life wants not promises; by admiration; by gratitude, which—debasement him not when his fellow-being is its object—habitually expands itself for his elevation, in complacency towards his Creator.” Every word of this is as true of women as of men. And the substance of what I have written is this,—throw no obstacle in the way of those women who seek to

develop and cultivate to the utmost their higher nature, intellectual, emotional, and moral. Let them know that all the avenues, and all the pages of knowledge, are open to them; and that it is not unworthy of their sex to think and to hope. For a very long time, only a small minority will seek to obtain this good thing of full-orbed culture. Among that minority may be—probably will be—some fitted to bless mankind. In the name of Justice, for man’s sake as well as for woman’s sake, let the few who seek, find; or if they fail, let them not have to blame any but themselves. Failure—both men and women must acquiesce in. Injustice—neither man nor woman can bear.

THE STUDY OF PHYSICS IN THE SECONDARY SCHOOLS.

BY JOHN TROWBRIDGE, ASSISTANT PROFESSOR OF PHYSICS IN HARVARD UNIVERSITY.

PHYSICS is a comprehensive term for the laws of the physical universe, and is gradually superseding the old term natural philosophy, which held together in a disconnected manner various facts in mechanics, light, heat, sound, electricity, and magnetism. Under the head of Natural Philosophy most of us were taught that a body falling from the vertex of an inclined plane acquires the same velocity as it would if it rolled down the plane. A considerable knowledge of mathematics was required to prove this fact, and the youthful mind could hardly see the bearing of it when it was demonstrated. We were shown what we learned to call the falling machine of Atwood, which proved simple laws with such ponderousness of structure and complexity of appliances that even the

name of the machine made more impression upon the memory than the laws of which it was the servant. The brightest boys could prove that the square of the velocity of a falling body was equal to twice the acceleration of gravity multiplied by the height through which it had fallen, and the rest of us mutely followed the rule, and substituted in a formula which was forgotten as soon as the exigencies of school life were over. We also carried away vague recollections of a pump which worked by means of a curiously constructed valve. We had forgotten whether the centre of gravity is where the centre of pressure is applied, or where specific gravity exerts itself. We remembered a tuning-fork, an electrical machine, and a big electro-magnet which lifted the smallest boy in

school, and that was all that we remembered of natural philosophy. At that very age most of us, if not all, were curious about air and water, the motions of the earth and the moon, the light of the stars, the curious manifestations of frost, fire, and electricity and magnetism. I remember how glibly we recited portions of natural philosophy where the author forgot his grim mood for a moment, his triangles and square roots, and explained in a simple manner why the rising moon appeared so large between the small branches of a wood, and why fog came up the bay when the sun went down. When we succeeded in getting the right answer to a problem we were elated and began to think that natural philosophy was not so difficult to study after all; but these moods of elation were too often succeeded by those of blackest night and incendiary desires. In looking back, the thought comes to us that there must have been something radically wrong in such teaching; for the subject of the laws of the physical universe has such infinite possibilities and contains so much that can stimulate the imagination of even young children, that any method which represses, or does not encourage a child's desire to know the reason of things, must be radically wrong.

It must not be supposed, however, that the picture we have presented has not its bright side: there are always teachers who are especially interested in physical science, and who excite an interest in the subject among their pupils. The hour of the lecture on physics is looked forward to by the pupils of some schools with great relish, and some date their interest from the school exercises in this branch. Generally speaking, however, most men who have more than the ordinary knowledge of science have had their enthusiasm awakened out of school, and by actually working with appa-

tus, or handling specimens, have taught themselves.

The opponents of the study of physics in the secondary schools generally regard it as of less importance than the mathematical or grammatical studies, and class it among what they regard as superfluous subjects, the number of which has very much increased of late years. Not a few of these remember the manner in which they were taught, and have no desire that their children should repeat their experience. It is very natural also that the teacher whose training has been exclusively literary should be indisposed to teach a subject like physics, which requires a certain facility with apparatus and some inventiveness which a purely literary training has the effect of obscuring and even crushing out. Who has not seen an excellent teacher in the languages or even in mathematics fail completely before a class of boys and girls in showing some simple experiment? It is very natural that he should fail, for this facility and inventiveness of which we have spoken come, except to the few, only by practice and from an early habit of observation. More time also is consumed in getting ready for one lecture or exercise in physics than in six recitations in the straightforward subjects of language and mathematics. A refractory piece of brass, a wire wanting here and there, a shrunken bit of bladder, a broken glass tube, may involve hours' labour for one who is generally hard-worked in other ways. It is easy to theorize on the subject of teaching science, especially physical science, in the second grade of schools, but one should not forget the wearing nature of routine work which is apt to deaden one's enthusiasm. One cannot expect a teacher to hold weekly talks with his pupils on force, or to rely upon treatises which are merely descriptive, or to be patient with apparatus which, by frequent use, seems almost

puerile, without giving him also a comparatively rigid standard in the shape of a book by which he can advance in a more or less mechanical manner. Many teachers, therefore, comply with the letter of the law, and with one of the many text-books called *Natural Philosophy* shorten the popular exposition of the subject to a minimum and demand a certain number of problems under the lever, the screw, the inclined plane, and the pendulum. This mechanical teaching succeeds to a certain extent with the bright boys of some mathematical tendencies; but it fails with the great majority, who speedily get a disgust for the whole subject. To add to the teachers' difficulties, many of them have not a sufficient knowledge of the subject to enable them to courageously reject the descriptions of machines with which many text-books are filled, in which the principles are lost sight of in a multiplicity of levers, pulleys, and connecting pieces.

In teaching a language or a branch of mathematics in a grammar school, one has all his materials ready at hand, a certain author, a certain dictionary, a grammar. In teaching physical science, almost every text-book requires to be supplemented by some apparatus which is not provided with the text-book, and contrivances must be resorted to, and judgment must be used in regard to aids in teaching upon which experience seems to be very indefinite. There are wide limits in regard to the cost of this or that piece of apparatus, and difficulties in deciding between instrument-makers. Very often there is no one available to repair an instrument, and the instruction has an added tendency to become mechanical.

On the other hand, there are enthusiastic teachers who are imbued with the modern popular method of teaching physics by the aid of a lime-light stereopticon. Small appropria-

tions are saved until an expensive instrument can be obtained; and what may be called a college course in physics is inaugurated in the second grade of schools. It is a laudable ambition to desire to illustrate the subject of physics by the method of projections; but the policy of expending from one to two hundred dollars for a lime-light for the use of a grammar or even a high school is questionable.

Professor Mayer, in his excellent little books on the experimental study of light and sound, shows how a water lantern can be constructed for three dollars, which answers every purpose; and if there is no sunlight one of the many forms of kerosene lanterns is admirable for showing diagrams, the deflections of a galvanometer, crystallizations, and minute experiments which a class could not otherwise see to advantage. With the aid of such a cheap method of projection, a grammar school master can give quite an extended course in physics with simple apparatus. He can draw his own diagrams on smoked glass, fixing the drawing by exposing it to the vapour of alcohol, which is evaporated from a shallow dish; and for the money which is expended for a lime-light apparatus enough apparatus can be bought which, supplemented by a water or a kerosene lantern, would illustrate a full course of elementary lectures on physics. In many school collections of apparatus, a few expensive instruments will be found: an air-pump; a Holtz electrical machine; a large induction coil. One or two of such instruments form the rallying point of the department of physics, and are accompanied by meagre and disjointed apparatus. The student collects, so to speak, his thoughts about the picture of a complicated machine; his ideas of the pressure of gases or rarefied air are complicated by the imperfect remembrance of certain valves.

Electricity of high tension means something evoked by an electrical machine. These pieces of apparatus which I have mentioned form a salient point of attack upon the system of instruction in physics too common in many schools. A good air-pump is difficult to keep in order, and finds its true place only in the private laboratory of an investigator, or in a college collection of apparatus. In the secondary grade of schools some form of Sprengel's pump, or, where there is an available head of water, an aspirator, will illustrate varying pressures sufficiently well. The new Holtz machine which schools are anxious to possess can only serve as a toy, for the theory of its working is very hard to comprehend even by those who have studied the subject in mature years.

The modern view of the physical universe is that there is no such state as rest: the particles of a gas are in an incessant state of motion, and it can be maintained that when a stone rests upon a table it is not at rest; for it is forced downward by the action of gravitation through a very small distance, and the elasticity of its support tends to move it upward through the same distance. The term statics is apt to be misleading, and the best writers on science of to-day begin treatises on natural philosophy with the subject of dynamics or forces in motion. In no subject, however, is the division into statics and dynamics so illogical as in the subject of electricity. In most schools a student begins the study of this subject with frictional electricity and the electrical machine. An advanced student in a university pursues the opposite plan, and approaches the subject, even if it be for the first time, from the standpoint of the voltaic cell, and traces the development of the force up to the point of the generation of electricity similar to that produced by an electrical machine. Very little knowledge

can be obtained from the exhibition of toys like dancing pith-balls, insulated stools, miser's plates, and apparatus for obtaining shocks.

The method of instruction in physical science, therefore, in the secondary grades of schools, seems to me to be too costly and not sufficiently logical. The remedy does not consist in curtailing the amount of attention paid to the subject in the lower schools, or in relegating it to a more advanced period of education. It is more reasonably embraced in leading teachers to seek simpler methods of instruction, simpler apparatus, and to avoid abstruse conceptions, and the solution of mechanical problems for which mere formulas are given. It would be well, also, if the best students are led to experiment themselves, and are stimulated to observe. This is hardly possible in crowded grammar schools; but the excellent little treatises of Professor Mayer on experimental physics would lead many children, under proper encouragement from their teachers, to try simple experiments at home.

An ideal method of teaching physics in the secondary grade of schools would consist in developing the whole subject from the standpoint of motion, insisting upon the larger facts, correlating them as far as possible, and neglecting special applications and special facts. A number of interesting experiments can show that work must be done in all cases to produce work, and that motion can be changed into heat, and heat into motion. The student's mind should be tempted to take, at the very beginning of his study of the subject, an extended view of the application of the law of the conservation of energy. While treating the subject of force, a little descriptive astronomy can be given which will aid in stimulating the imagination. The subjects of heat and acoustics can be taught purely under the head of mechanics, with a variety of most inter-

esting and simple experiments. I am inclined to place the subject of electricity and magnetism under the same head; and, beginning with the fact that electricity is generated by a voltaic cell, I should trace its simple manifestations until they conduct one to the law that all motion can be converted into electricity, and that electricity can be entirely converted again into heat and light. Having then shown that light can be produced by motion, the undulatory theory can be cautiously introduced. As a review of the subject of physics, one could take as a text the impossibility of perpetual motion, and enforce it with a variety of illustrations. The utility of the study of physics in the grammar schools is often questioned, and indeed the larger question of the value of scientific training except to the few in the world at large is often mooted. There is no doubt that the study of the humanities, in which the great story of men's deeds in the past is recorded, will always prove the most fascinating to the majority; and it can be maintained with reason that those subjects which readily excite an interest in the largest number will prove the readiest means of intellectual training. Science is regarded by many scholars merely as a practical branch of human knowledge, and, although its great value in contributing to the good of the world is acknowledged, yet its study is regarded as inferior in intellectual results to that of language or philosophy. It cannot be denied, however, that the study of physical science gives a certain definiteness to our modes of thinking, even if it will not be granted that it affords a better method of intellectual training than philosophical study. It supplies a tonic which minds much accustomed, from the exclusive study of language, to take things for granted and to look no further than the grammar and dictionary, stands much in need of, and also

corrects a certain credulity and superstition which is rampant even in our time, and to which it is well to devote a few words in connection with the subject of scientific training. There is a strong undercurrent of superstition and belief in supersensible or wonderful and not-to-be-explained marvels which makes its way beneath the crust of society. Occasionally it bursts forth in so-called manifestations of spiritualism and animal magnetism, or belief in mesmerism and clairvoyance. There is hardly a family of which some member has not applied to a clairvoyant for relief in diseases of which the regular practitioner has failed to treat successfully. A literary education does not cope successfully with the insidious advances of this form of ignorance; for the very element of education which can do so is not generally cultivated among even so-called liberally educated persons. This lost element is the spirit of investigation. The students who come to a physical laboratory for the first time can be rapidly classified into three classes: 1. Those who can reason from A to B over what may be termed a straight line with considerable ease, 2. Those who naturally reverse their process of reasoning and test the way from B to A; this is a rarer class of mind. Copernicus was unable to explain the motions of the planets by supposing that all the visible stars revolved around the earth: he reversed his process of reasoning, and explained the facts by supposing the earth to turn and the stars to remain at rest. Kant, in his "Critique of Pure Reason," speaks of the revolution which he had brought about in philosophy, and likens it to the logical process which led Copernicus to his discovery. "Hitherto," he says, "it had been assumed that all our knowledge must regulate itself according to the objects; but all attempts to make anything out of them *à priori*, through

notions whereby our knowledge might be enlarged, proved, under this supposition, abortive. Let us, then, try for once whether we do not succeed better with the problems of metaphysics, by assuming that the objects must regulate themselves according to our knowledge, a mode of viewing the subject which accords so much better with the desired possibility of a knowledge of them *à priori*, which must decide something concerning objects before they are given us." In practical matters this process of reversals is often exemplified; the inventor of the sewing-machine finds that his needle will not work with the eye at one end, and accordingly reverses its position and is successful. 3. The third class comprises those who may be said to think in directions at right angles to their previous method of thinking, and there may be minds which possess what is analogous to the fourth dimension in space—an ability to think in all azimuths. It is strange that there are so few psychological impostors in the world; for the first class of minds, those who only think from A to B, when a new class of facts are presented to them, is very large. An ingenious man can make a small magnetic motor which apparently runs with only the assistance of permanent magnets, and by means of extremely small clockwork, maintain the motion beyond the period which a mind of class 1 is willing to give to an observation. It would naturally occur to such a mind to take the motor to pieces and examine the casings or box. If it finds nothing, and perceives that, when the apparatus is put together and is placed by the inventor on his table, it still runs, the investigation ceases, and another story confirms the previous rumour of a new marvel. A mind of class 2 goes over the same process of reasoning, and moves the instrument to different points for fear of concealed mechanism under the table or in the

wall. A skilful manipulator, however, can still edge the motor to a third or fourth position, where other concealed clockwork can be taken advantage of, and in this way exhaust the number of what may be termed linear combinations of the investigator. The success of impostors in spiritualism and of the fabricators of new motors which are built to delude people resides in this, that they restrict the liberty of this system of reversals, or the spirit of investigation.

Any plan of education which prevents a man or woman from becoming the dupe of those who pretend to use natural or supernatural forces is to be commended. One of the quickest ways of training the mind in the logical process which I have indicated is to undertake some simple investigation in physics. Here mere observation is combined with a careful study of the interaction of various forces, and the mind must assign a logical weight to different observations. One truth, moreover, is forcibly brought forward—that, generally speaking, a number of observations under varying conditions, must be made to prove the correctness of any result. The man who has been through the process will not be found among those who are convinced by a single manifestation of clairvoyance or of spiritualism. He will not spread the stories of a wonderful new motor until he has put it to an exhaustive test.

It would be well if our common schools made some provision for a certain amount of experimental work in physics to illustrate this method of studying. A great deal of education is comprised in the knowledge of how to change the conditions of an experiment in the process of which I have termed a reversal, and also in the process of depending only upon a number of observations taken under different conditions. It would certainly be a great boon to the world if

the general level of scientific education could thus be raised, so that each young man or young woman, when he or she issues from school doors, should have enough definite knowledge of the great laws of the physical uni-

verse to instantly denounce blue-glass theories and attempts at perpetual motion, not from the pride of knowledge, but from the feeling that error, credulity and superstition, should be combated with truth.—*Popular Science Monthly*.

COUNTY MODEL SCHOOLS AND THEIR WORK.

BY S. B. WESTERVELT, PRINCIPAL, MODEL SCHOOL, MOUNT FOREST.

WITHIN a few years many and important steps have been taken towards giving a more thorough education to the masses. In 1871 was passed, somewhat in its present form, the amended School Act, which introduced many important reforms, and scarcely a session has passed since which has not added something to what was so well begun, until we have at the present time a system of education perhaps second to none in the world. Our schools are so far free that the poorest in the land have every facility afforded them for securing an education; and as a result every one is becoming more or less educated, and many are receiving sufficient education to enable them to pass the non-professional third-class examination, notwithstanding the fact that the standard of qualification has been gradually raised, till the third-class teacher of to-day stands quite superior to the old County Board first-class teacher of the past. So many have been successful in passing those examinations, that three-fourths of the schools are now taught by them. This being foreseen by the leading educationists, it was felt that a crisis had arisen in our history, when some attempts should be made to give at least some training to those young teachers for the very important work they were undertaking: hence the

establishment of the County Model Schools. What holds true in nearly every case, holds especially true with regard to the teacher, viz., that a man is not capable of doing anything well until he has had some teaching and experience in that work. We would think that this proposition need but be stated to be assented to, nevertheless we find some holding the opinion that when a person has passed a prescribed examination, having no reference whatever to his profession, he is quite capable of teaching a school without any instruction whatever as to how it should be managed,—without any knowledge of child nature, and not having the first idea as to discipline. It is true he cannot be a successful teacher without the education required to pass such an examination, and the better education he has the better teacher he will be, other things being equal; but it is also just as true that he may possess all the scholarship of the age, and utterly fail in managing a school. I will freely grant that if a person who is very observant be placed in charge of a school, he may in time acquire tolerably correct ideas as to how it should be managed, but before he acquires such proficiency he will have made a great many very serious mistakes. A celebrated oculist was once complimented on his skill. He replied "Yes, but I spoiled a bushel

of eyes before I acquired that skill." His mistakes were serious. Not so much so, however, as those of the untrained teacher. His work is of such a nature that its results cannot easily be seen as in the case of the oculist. In fact his work is such that eternity alone can reveal its true results, but if they could be seen and computed, the spoiling of a bushel of eyes would be small compared with them. Think of a man assuming to practice in law or medicine without any training for his profession. We would no doubt hesitate long before committing our case to such hands. If then we would not be willing to trust our property, or our persons, in the hands of those untrained for their profession, why should we be expected to trust work of infinitely greater importance to those without any preparatory training? Guizot says, "Let no schoolmaster be appointed who has not himself been a pupil of a school which instructs in the art of teaching, and who is not certified after a strict examination to have profited by the opportunities he has enjoyed." All the leading countries—Germany, France, England and the United States—have their training schools, and the leading educationists of our own country have seen the necessity of having some provision for the training of every teacher in the Public Schools. In 1847 our Provincial Normal School was opened. It has done a noble work in sending out trained teachers to all parts of the Province, and trustees have not been slow in availing themselves of their services as their superiority became manifest. Just thirty years after witnessed the inception of the County Model School, well called "the last link in our Public School system," and I think I may safely say not the least important link in our renowned system of education. The County Model Schools are designed

for the training of third-class teachers, a work which could not be overtaken by the Provincial Normal Schools, except by vastly multiplying their number, which would entail a very great expense on the country. They are comparatively inexpensive, and are designed to do a great work in giving preparatory training to the inexperienced teacher. Certainly before a teacher is allowed to take charge of a school, he should understand that he has to deal with the pupil in all the aspects of his nature as a physical, moral, and intelligent agent, and that he but imperfectly performs his work who fails in educating the pupil in all those aspects. The regulations for the conduct of the County Model School make provision for training the teacher for this work. They provide for instruction in the Science and Art of Teaching, and it is satisfactory to know that Education is now, more than at any time in the past, regarded as a Science. The Convocation of the University of London, deeming it desirable that proficiency in the Science and Art of Education be recognized, lately requested the Senate of the University to establish a Degree of Education. In fact it is now all but universally conceded that there are certain laws and principles regulating the activities of the human mind, and that he who would be successful in training the young must understand these principles and obey these laws. The lectures to the teachers-in-training are designed to teach them those principles and the work in the school-room to give them illustrations of how they should be applied. They are thus being taught by precept and example. Besides this, provision is made by which each teacher-in-training is to conduct a recitation before the principal, or some of his assistants, and in the presence of the student-teachers, after which the

criticisms by the students show at a glance how far the principles have been grasped, and to what extent they are able to apply them. It is true there are some who cannot understand what all the talk about education means, why so much need be said about the nature of the child, the mode of questioning and conducting recitations generally, and of the management of schools. These, however, are the exception; the others acquiring professional skill and the general principles of school management in a short time. So much for the intellectual aspect of the teacher's work.

The teacher again has a great work to do in inculcating good morals. The pupils are more or less under his care from, say, five years of age to twelve or fourteen, during which time they are most susceptible to impressions. They are brought in contact with other pupils and are placed in very favourable circumstances for the development of character, and whether that character be good or bad depends to a greater extent than I sometimes dare think of, on the conduct of the teacher. Currie says of the school: "It is a little world in which the pupils devise and carry out schemes as in the world without; in which individual interests are often concurrent and not seldom in opposition, but where both the concurrence and the opposition give rise to indefinite activity." It is for the teacher then to be very watchful of what is passing among his pupils while at their play, and during their associations generally, and to embrace every opportunity to teach them lessons of truthfulness, honesty, forbearance, and kindness. This is very important, as habits are now being formed which are to a great extent shaping their future character, and, as habit is a power which is not left at our own option to call into existence, "being given to us to

use or to abuse," how very important that good habits be formed. The lectures to the teachers-in-training are designed to bring this before them, and to teach them what are their duties in giving moral instruction to their pupils, and how it can be done with the best results. Here again the Model School, if properly conducted, furnishes examples of the formation of correct habits.

The teacher, further, should know something of the laws for the preservation of health, if he is to bring about the best results in his teaching. He should understand something of light, heat, ventilation and cleanliness, and their effect upon the health of his pupils, and he should know something of what is required in regard to exercise and recreation. He should understand that his pupils should have much time for recreation and should know about what work to assign so that they may not require to take the time for their school work which should be more properly given to recreation. This is, I fear, too much overlooked by many at the present time. While I doubt not "we are living in an age on ages telling" in regard to the mental activities called into action at the present time, yet I frequently fear that not only the present but future generations will feel the strain upon the nervous system which the present generation is enduring. That our present system, with all its excellencies, tends rather to enervate than invigorate, I have my fears. Can it be called education in its fullest sense when the nervous system is so prostrated that the mind is not capable of vigorous action? I think not. We should not aim so much to fill the mind as to make it vigorous to grapple successfully with the difficulties of life. While a proper amount of exercise of the mind is calculated to develop brain power, just as a proper amount of exercise of the body develops muscular power,

more than that proper amount fatigues and weakens just as surely in one case as in the other. Here again, in the Model School, instruction is given in regard to physical education. Students are taught that man possesses a brain and nervous system, being part of his physical organization, and that it is useless to expect those to act vigorously except when they are kept in a healthy state. They are taught the effect bad air has upon the brain and nervous system, leading them to deduce the necessity of a good system of ventilation. They are taught a good system of admitting light to the school-room so that they may be in a position to give advice in this direction if trustees should require it of them. They are also taught the necessity of exercise and recreation and their duty in making provision for them.

Again, there are some who do not know what they are best fitted for, who have thought of teaching without seriously considering whether or not they are adapted for it. While I believe firmly that the Model Schools can do much to develop what talent for teaching the student may possess, I do not believe that it can implant that talent. If a student does not possess some tact for teaching, he had better try digging, or some other honourable occupation; 'if to beg he is ashamed.' Now, I believe that God made nothing in vain, and that He has a place for every man to fill, but I do not believe that every man's place is that of a teacher. There are other positions where he may be an ornament if he can only find that suited to his capacities. Here, then, the Model School has its work. According to the regulations, "No candidate who . . . is devoid of aptitude for teaching . . . should receive a certificate." It is their duty to reject those who do not display this aptitude.

But I must pass rapidly over these

and give a few hints as to their better working and greater efficiency.

First.—There are subjects on the programme which should not be taken up in the Model School. They have quite enough to do when confined entirely to Normal work without taking any literary subjects as at present. Is there any reason, for instance, why mental arithmetic, reading and elocution should be taught, that would not apply to the teaching of any other subjects? If, then, there exists no reason for teaching, say geography and grammar, then certainly there exists no reason for teaching these subjects. It is felt by many trustees of Model Schools (let it be understood that I am not now speaking of my own trustees) that the principal requires to spend too much of his time with the student teachers. Why, then, not drop those subjects and have them taught in the High Schools, where (without, I think, detracting in the least from the merits of the Model Schools) they could be better taught?

Second.—Model Schools are not at all compensated for the work they do. The Government grants \$100 a year and the County is expected to grant at least a \$100 a year in addition. This, in many counties, goes to pay the principal and the teachers for their extra work in the school. Where, then, is the compensation to the trustees, who are required to furnish an extra room and keep teachers of a certain class, besides having their schools taught to quite an extent by inexperienced teachers, whose work at first, I suppose, will be like that of any other "prentice hand" a great deal of it requiring to be done again before being well done. I am satisfied that our County Councils do not consider the benefits their counties at large are reaping from having a much superior class of teachers taking charge of their schools or they would not think of granting less than three or four hun-

dred dollars for such training. This would enable the trustees to engage a teacher to take the principals' division during the sessions of the Model School, and leave him free to devote his whole time to the management of the school, and to the instruction of the teachers-in-training.

Third.—In regard to the teachers in the Model Schools, they should be the best that can be had in their class, so that student-teachers may see teaching done, which it would be their ambition to emulate. They should see the pupils managed with that kindness and firmness, and that vigilance over their conduct which would lead them to look upon the school as more than in name a model school.

Lastly.—If they are not yet all they

ought to be (and their most ardent admirer, I am sure, does not think they are), no doubt they are doing a noble work. There is many a young teacher leaves there with broader and nobler views and higher aspirations, seeing much more in his calling than a mere means by which he is to gain a livelihood, regarding it as it deserves to be regarded—the noblest of all professions. In 1877 and 1878 nearly 100 received training in my own County Model School, and in other counties I suppose the numbers would be much the same. If then so many are being trained, and if the schools are designed to accomplish that with which I have credited them, then surely they are worthy of the hearty support of all true friends of education.

WE are glad to note that an effort is to be made to obtain some authoritative opinion on the vexed question of corporal punishment in schools. A teacher of thirty years' standing having been summoned twice in a few months to answer charges of assault committed upon pupils in his school, and contrary decisions having been given by the magistrates who heard the cases, a meeting of the school managers and teachers of the district was held to consider the whole question. The meeting was unanimous in the opinion, that it is impossible for elementary schools, to be maintained efficiently unless teachers have the power to inflict judicious corporal chastisement for certain offences, and to such culprits as are amenable to no other kind of punishment within their powers to administer. It was determined, in order to elicit, if possible, the opinion of the Education Department, and so far settle this question, that the chairman should sign the following resolution on behalf of the meeting, and forward a copy of it to the Council Office:—"That difficulties having arisen in this and other parts of the kingdom in the matter of corporal punishment in elementary schools, through convictions having been obtained before magistrates against teachers for administering the same, we think that the time has arrived when the Education Department should make its opinion on the subject known to managers, teachers, and the general public (1) as to the necessity of corporal punishment, (2) its mode of infliction, and (3) the punishing powers generally of the teachers and managers of our elementary schools." It may be too much to hope

that the Department will respond to the invitation to favour the managers and teachers with an opinion respecting corporal punishment, but the ventilation of the subject must do good. We are pleased to find that managers are so ready to use their influence to obtain for teachers fair play in the matter. Reason and justice demand that if teachers are to be held responsible for the maintenance of good discipline, they ought to be supplied with the necessary means. Teachers are nearly unanimous in the assertion that in certain cases discipline cannot be properly maintained without the infliction of corporal punishment. In this view school managers and school inspectors, as a rule, concur. The objectors are chiefly a few well-meaning enthusiasts, who have no experience of school work, and whose efforts in certain cases to abolish corporal punishment from schools have given rise in some cases to public scandals. Some punishment being absolutely required, and corporal punishment forbidden, recourse has been had to means calculated to injure children for life. Teachers have everything to gain from a full and free discussion of the question. Such discussion must lead to the conclusion that while all punishments should be avoided as long as possible, and severe punishments never inflicted in cases which can be met adequately by the adoption of milder means, yet there do occur cases with which the teacher is bound to deal which can be treated in no way so well calculated to benefit the child himself as by the judicious administration of corporal punishment.—*The Schoolmaster*, London.

TWO OF THE CONDITIONS OF A TEACHING PROFESSION.

BY THEODORE H. RAND, D.C.L., CHIEF SUPERINTENDENT OF EDUCATION,
FREDERICTON, N. B.

THE supply of qualified teachers, and their retention in the school service, is a problem which no Province or State on this continent has satisfactorily solved. In the business of education, the man or woman who educates is everything; a qualified teaching staff is, therefore, necessary to the wide diffusion of sound education. This truth has been clearly apprehended and deeply felt by those entrusted with the administration of public school systems. While too much attention can hardly be given to school-houses, furniture, text-books, and apparatus, it is evident that these, however skilfully devised, stop short of the requirements of the case. The matter lies deeper. The living agent, the teacher, is the power which actually determines the efficiency of all other instrumentalities. What is manifestly required, therefore, as an essential part of a public school system, is a staff of efficient teachers, men and women skilled in the difficult profession of teaching. This is the very heart of the whole thing. Failure here is not made good by houses, books, or other appliances: it is failure out and out.

My experience and observation, both on this continent and abroad, have forced home upon me the truth of the old maxim, "The Teacher is the School," and I can hardly overstate the strength of my convictions on this point. Let the reader fix his mind for a little on the best teacher he

ever knew. Call to mind the simplicity and sweetness of his manners, the clearness of his methods, the accuracy of his knowledge. How skilfully he put one in possession of one's own powers. How soon his pupils came to respect themselves, and to have confidence in their own abilities. How delightful to them was study, and how soon they learned, and with what an outcome of real power, that the boundless world of knowledge was not his only, but theirs, and all men's. Place now such a teacher in every school in this "Canada of ours:" what possibilities of noble endeavour and achievement could be denied to a people reared under such guidance! And yet, having brought into existence a system of public schools, every province is under the gravest obligations to do its utmost to secure this very result. Just as far as it approximates this, and no further, will it attain the object for which any public educational provision can properly exist.

Assuming that the business of teaching can fairly be shewn to meet the conditions demanded of the general professions, though differing of necessity, in some of its aspects from them all, what conditions are essential to its actual assumption of such a character before the public? None will dispute that the first condition is this: *only those persons who prove themselves qualified in a prescribed degree must receive authority to act as teachers*

in the Public Schools. It is certainly possible to ascertain with sufficient accuracy whether the attainments of any applicant for authority to practise in any recognized department of the profession are such as to warrant, without injustice to any, the granting of that authority, in accordance with established principles, applicable alike to all. A common authority must guard the door of admission to the profession in the province, and the character of this common authority, and the uniformity of its operations, must be such as to preclude all suspicion of favouritism, and command in all respects the confidence of the public.

Granted that suitable means are set in operation by which scholastic and professional preparation may be had, and applicants for admission to the profession worthily tested, none will question that a second condition is this: *teaching must offer such pecuniary guarantees as shall permit qualified persons to make it their business for life.* I do not refer especially to the obligations resting upon the local communities in this matter. These obligations are great, and must, of course, be assumed before we shall see a staff of qualified persons making teaching their life work. These obligations will be acknowledged and discharged very much in accordance with the estimate placed by the Legislature of the Province upon the *quality* of the work performed in the schools. This estimate can find effective expression only in the means adopted by the province to insure to the people that the character of each teacher's work shall be regularly and adequately tested, and publicly made known. Were such well done by the province, it is plain that the local communities would, in this way, be continuously and powerfully appealed to by the importance assigned to the business of teaching. To overtake this work

successfully, an outline course of school instruction, having the sanction of representative teachers, and adapted to graded schools in cities, towns, and villages, and ungraded schools in country districts, should be issued by the Education Department, that, among other benefits, every teacher might know what is expected of him. The ablest teachers should be selected as Inspectors, and the quality of the work done in the schools carefully ascertained by annual inspection. I believe there is such a thing as too frequent official inspection, and it appears to me that semi-annual inspection (I do not mean visitation) is calculated to foster neither freedom in teaching nor permanency of schools. The evils which inhere in the English plan of inspection may be avoided, I think, by classifying schools as schools. I do not propose, however, to detail a plan of school classification. When a teacher has been admitted to practise in a specified department of the profession, in accordance with the first condition I have mentioned, there is a reasonable presumption, *and that is all*, that he has the essential qualifications for his office. When he has had charge of a school for a year, the character of his work should be tested and made known, and this process should, for the benefit of all concerned, be annually repeated. I see little use in laboriously classifying a school which has not been in charge of the same teacher for a year immediately preceding such classification.

My special object in presenting the above outline is to indicate the practicability of an intelligent adjustment of provincial pecuniary guarantees to teachers—a Relief and Aid Fund—available in the event of loss of health in the school service, or disability from old age:—

1. A school (or department) classed

in the first, second, or third rank, to entitle the teacher to a yearly allowance from the province equal to the following amount, per year, for every year of service performed,—

MEN.	WOMEN.
First Rank.	First Rank.
Second Rank.	Second Rank.
Third Rank.	Third Rank.

When the series of annual classifications includes different ranks, the proportional average amount affixed to these different ranks, to form the yearly unit; but when the whole series of annual classification shews less than seventy-five per cent. in some rank, no claim to exist until this percentage is restored.

2. A teacher who shall have taught for a period of at least five years, on an average, in each district in which he or she has been employed, and the whole series of annual classifications of whose schools shews seventy-five per cent of the first rank, to be entitled to a larger amount, per annum, in the event of being disabled.

It is specially to be observed that the rank assigned to the school, under the plan suggested, has no necessary connection with the class of license held by the teacher, but is dependent upon the character of the work done under such standards as are adapted to the school, in accordance with the outline course of instruction. This would leave ample verge for the recognition of every form of teaching ability, and afford no shelter for talented indolence.

Referring now to the two conditions which have been specified, it is my conviction that they include in essence and must evolve in operation, a fulness of sound results far beyond what the first blush of the subject might disclose. I shall briefly put these suggestions to the test, and in doing so let me anew direct the reader's attention to what it is we wish to accomplish. It is this simply: the right

education of the people,—not the right education of the few, and the wrong education of the many, but a measure of the veritable possession for all. This is the aim, nothing more, or less, or else. Any proposition, come whence it may, that seeks incorporation into a school system is to be condemned, if it can be shewn that its operation will not always be a means to this end. But if it fairly passes this test it is genuine. Do, then, the conditions which I have named so touch the complex sources of school life as to evoke concurrently all the forces of the school organism in the spread of sound education? A reply to this crucial question may be rapidly outlined:—

For the province to demand specific qualifications as the basis of conferring authority to teach, involves the determination by the province of the nature of these qualifications, the ensuring of suitable facilities for their attainment, and the careful examination by competent persons of all applicants for license. Thus, at one stroke, scholastic and professional preparation is quickened over the whole country, and quickened for all time.

Persons who are not capable of demonstrating a reasonable degree of fitness for the work of teaching will not seek to enter upon it, or, seeking, will be debarred. Young men and young women of good parts observe that the province has work for them to do,—work which it impressively declares to be of great moment, and which unqualified persons will not be commissioned to undertake, and their sympathies are enlisted in this department of the public service.

There is ever being born into the community a host of true souls, such as real teachers are made of, who are ready to renounce the prospect of becoming wealthy, for the sake of doing service in a great and worthy cause. All that is needed is the public assur-

ance that the material wants of themselves and theirs, shall be provided for in a manner tolerably in keeping with the functions to be discharged. Let this class of persons once know that the province is pledged to make public declaration of the quality of every teacher's work, and that those who do good work can devote their lives to it without being exposed to want and distress, in their days of weakness and old age; and the province will have their services in the schools of the land. And let me here remark that the pecuniary guarantees which I have suggested are not pay for the services done, but simply the removal of an obstacle, which would have prevented the service being done; and the recognition of the importance and value of the service.

To keep the door of the profession wide open for the admission of the best talent of the country, and at the same time to keep another door open for the quiet withdrawal of those who, from whatever cause, are not successful teachers, is a problem that must be solved before sound education can be widely diffused. But the careful classification of all teachers by the province, and the periodic classification of their schools in the manner suggested, with the accompanying guarantees, would set the door of entrance wide open, render those happy who love the work, and ever motion the remainder towards the door of exit. Both on this continent and in Europe a superannuated teachers' fund is thought to be a most desirable thing. In this opinion I fully concur, but not on the principle on which any such fund known to me is administered. The benefits of such funds do not flow to the recipients as the recognition of the *excellence* of service ren-

dered. The benefits are open to good, poor, and indifferent teachers alike. Hence persons who lack the energy necessary to make a decent livelihood in other callings, find themselves powerfully drawn towards "keeping school." They can eke out the present as well at teaching as at anything else. Their presence in the profession drives many worthy persons out of it, and keeps more from entering it. Poor teachers multiply, and the school system is weighed down with them. This is the obvious tendency of a fund so administered, and to the degree that it so operates it retards the spread of sound education among the people. Unless I greatly mistake, the pecuniary guarantees I have suggested exactly meet the needs which the ordinary superannuated funds were created to meet, and on principles which pass the test. These guarantees are for excellence of work,—excellence not of to-day, or of to-morrow, but throughout the entire period of service. Those whose schools fail of classification, or of maintaining the minimum status, are not doing a tolerable measure of the educational work required, and so find themselves forced out of the profession. The migratory habits of teachers would also be effectively checked by the operation of the plan proposed, so far as it is desirable to check them.

I have sufficiently indicated, perhaps, the far-reaching influence of the conditions referred to, and shewn their adaptation to the end in view. Fairly and intelligently applied, they would, I believe, remove the chief hindrances to the *bona fide* existence and universal recognition of a teaching profession in any province.

TACT.*

BY MISS RIDDELL, OF THE MADOC MODEL SCHOOL.

TACT, discretion, aptness, adroitness, and many other words and phrases are used to express in other language the much abused term *common sense*. Every day we hear some such expression as the following:—"What great tact she has." "Oh! he never had any tact." "Tact is necessary in that business," etc., etc. How many, hearing these expressions, ever ask themselves the question, "what is tact?" Like the term common sense, it has been so much and so often used that were you to ask the one who uses the word every day, and many times during the day, to define tact, you would get an answer that would agree neither with your own idea of tact, nor with the opinion of anyone else. If I were to ask each one in the room to give a definition of the word, how many are there who would be able to tell what it really means?

The dictionary gives the meaning of the word "tact" as "peculiar skill or faculty," or "nice perception," from which the conclusion might be drawn that it is a natural faculty, not an acquired one.

While this to some extent is true, still there is a way in which people, naturally possessing very little tact, may, as I shall endeavour to show further on, become as skilful in the art of smoothing difficulties and avoiding snares, as those who—I had almost said from infancy—always say and do the right thing, in the right place, and at the right time.

This ability, faculty, art, or whatever it may be called, is a large ingredient in the success of any profession. The doctor, who by his pleasant and agreeable manner, by his *tact* in other words, makes his patients, suffering, it may be, under a very trifling ailment, think (we will hope with truth) that he feels as deep an interest in their complaints as it is possible for him to feel, is more apt to become a successful practitioner than one who with perhaps greater skill and medical attainments treats such cases as well as they very likely deserve to be treated, but in such a manner as leaves the patient mortified and angry. The candidate for parliamentary or even municipal honours finds this faculty in the highest degree necessary to him in his electioneering campaign. The candidate who has tact enough to enable him to overcome all objections raised against him and to bring his very enemies round to his side, and more difficult still, to interest those before in different, stands a very good chance, even against one, who, by his superior knowledge of the needs of the riding, is better qualified for the place, but who, by the absence of the necessary mother wit, fails to win the approbation of the people. Time would fail me were I to attempt to show how necessary tact is to the success of any profession, but observation will teach you much better than anything I can say on the subject, that it is so; and while this is true in all the different walks of life, in the teaching profes-

* A paper read at the North Hastings Teachers' Association.

sion above all others it is impossible to get on without it. True, some may possess it in a greater degree than others, but certainly all must have it and develop it to the best of their power, if they wish to succeed in the profession. With so many trustees, parents, and children to agree with and instruct, how necessary it is that the teacher should be able to explain difficulties, encourage industry, and keep peace and harmony in the school-room and section.

As these meetings are supposed to be for the benefit of teachers more particularly, tact, as shown in that profession, will be the subject treated of; and although I cannot pretend to tell you any new facts, I may be fortunate enough to drop a few hints that will prove useful to some teacher in the Association, and, if so, I shall consider the time spent in the preparation of this essay as being most usefully employed.

Almost every man thinks he knows all about teaching, though no two think alike; and those who know the least are generally the readiest to impose heavy tasks on the teacher, but will never think of assisting him to bear one of them. The teacher, therefore, needs to be courteously decided in holding his own opinion, and to be able to adapt himself to existing circumstances, for on that, too, a great degree will depend his success in the section. It is necessary that the teacher take notice of and remember all that takes place in the school-room, to guard against the garbled tales carried home by the children, and to be able to set right any trouble arising from them.

A parent may come full of rage to complain of some real or imaginary wrong done his child. Let the teacher show his tact by keeping calm and not causing anger to be increased by opposing anger. Always remember that a "soft answer turneth away wrath,"

and that "real glory springs from the silent conquest of ourselves, and without this the conqueror is naught but the first slave." Let him speak calmly and kindly, giving such corrections and explanations as the case may demand, and in nine cases out of ten the angry man will be subdued and return home a better friend to the teacher and a more judicious parent to his children. Another may come after a quarterly examination, perhaps, full of righteous indignation because his child has not been promoted, not taking into consideration the neglected lessons and the half or whole holidays granted him during the term. An exhibition of the absent marks in the register and the marks of imperfect lessons in the class-book, with a kindly explanation of how and why he could not help but fail at the required examination, will not only appease the parent's wrath, but send him home resolved to see that his child is regularly in school, and has ample time and opportunity for preparing his work at home. Let the teacher strive to meet all such cases as these with a spirit of kindness and self-control and he will seldom fail of doing good.

But dealing with outsiders is only a small part of the teacher's duty. He will find that the place where tact is most necessary is in the school-room, and there it should always be borne in mind that whatever interests the children will exercise no small influence on the parents, and that teachers, parents, and children are joint partners in the work of training, and while something can be done by each party individually, the greatest success can be attained only by the harmonious co-operation of all. When this has been obtained, the teacher will be able to prosecute with zeal the real work of education.

On the teacher depends, in a great measure, the atmosphere that pervades the school-room; it will be precisely

what he shall decide to make it. If the teacher enters in the morning with a gloomy countenance, and shows a discontented spirit, his pupils will be apt to be restless and wearisome; but, if, on the other hand, he is cheerful and shows a happy frame of mind and a kindness in every tone and movement, he will do much towards making the pupils contented and happy. How necessary, therefore, is the cultivation of all these kindly feelings and traits of heart, which are such an adornment to the whole life and character of the possessor, and which go far to render him a more agreeable companion and useful citizen. Only from a sincere love for his calling and a sincere desire to do good, with a kind and feeling heart, aided by a growing knowledge of the world, will the teacher gain the power, so much to be desired, of rendering himself more agreeable, and, what is of greater importance, of making study more pleasant to the children under his charge.

Tact is necessary in every department of school work—in discipline, government, recitations, assigning of lessons, and in the other duties of the school room. In fact, as was said before, nothing can be done successfully without it.

If there is any place on the surface of the earth where order is the first and last, and highest law, that place is the school-room—without it there can be no such thing as progress. While it is a fact that the true spirit of obedience and subordination will tend to the happiness of the young while in school, it is also true that it will prepare them for higher spheres of usefulness and happiness when manhood's cares and duties and responsibilities shall be assumed. With what earnestness, then, should every teacher ask himself the question "How can I best discipline the tender minds entrusted to my care and training?"

The greatest discretion must be used in classifying and governing the many minds, each differing from the other in disposition and attainments. There will be the idle and indifferent to arouse and urge onward, the diffident to encourage, the too forward to check and reprove. Besides these, there will be need of correcting and directing the whole, and imparting to all the spirit of inspiration and earnestness necessary in the pursuit of knowledge. Have few regulations and the justice and necessity of those obvious to the very youngest. Let the teacher be careful to say only what he means, and mean only what he says, and carry out firmly, decidedly, and kindly, every rule that he makes, and above all things let him be uniform in action, not saying or doing one thing one day and the opposite the next. Be self-controlled, kind, and determined, never letting the pupils see that they can vex you or make you lose your self-command. Be very sparing of the voice, for the more noise made in attempts to obtain order the more is needed, and order obtained at the expense of a great noise is usually of short duration. There are looks and tones of the voice which can awe into obedience more readily and completely than the most severe language of reproof and threatening. Individual character must be studied. To some a look or word of reproof will be more efficacious than the severest personal chastisement to others. Great tact must be used, as you see, in obtaining and keeping order; and one more suggestion may not be out of place here, and that is, that music is a valuable instrument in preserving order in a school. Try it. When you see the pupils becoming restless, listless, and dull, drop the work in hand and start some simple tune. If you have not already tried it you will be astonished to see how quickly and effectually good feeling is restored.

There may and there *will* be times when it will require all the self-government of a teacher to refrain from the use of harsh expression and acts. A pupil may be guilty of the grossest misconduct or of the most provoking impudence, and strongly excite the indignation of the teacher. Remember your tact. Let such a one be dealt with in a decided but calm manner, and the deserved punishment inflicted more in sorrow than in anger, and it will be doubly effective. View carefully all the circumstances, that you may in this as in other cases, as nearly as possible, say and do the right thing, at the right time, in the right way. Wisdom in planning and skill in performing are two great and essential elements of success in any undertaking, and emphatically so in the school-room. There is nothing that demands so much skill, judgment, and prudence in the teacher, as the proper mode and extent of rendering assistance to his pupils. He must know not only when and how to give, but, also when and how not to give, and still inspire a spirit of perseverance on the part of the scholar. The pupil must be constantly working towards his own success, and unless we secure his willing co-operation it is useless to look for this; and if the pupil's share in the work of education is to do the work assigned to him, the teacher's is to induce him to do it. A certain amount of compulsion will be necessary in this. There must be some pleasure associated with the work in the pupil's mind, and if he is made to feel a want before the way is pointed out in which it may be supplied, and be convinced that he can, by working, supply it, a great stimulus to labour will be given him in the hope of success. There is a great satisfaction in doing a thing for one's self, and the teacher does the pupil a lasting injury who takes this pleasure from him. Northend in

his work on "Teacher and Parent" gives some excellent hints and rules for the guidance of teachers in assisting their pupils, which I cannot do better than quote. They express better than any words I could use how much and how often help is to be given. He says:—"A teacher should devise means and adopt expedients to excite the curiosity and rouse the energies of his pupils. He should then endeavour to fix their attention and concentrate their awakened energies on the prescribed subject of inquiry and instruction. He should connect with his instruction as far as possible what is interesting and attractive, so that the associations formed in the minds of his pupils will leave them in love with the subject of investigation, and in the proper time bring them back to the pursuit with readiness and alacrity. He should exclude from his illustrations, as far as possible, everything calculated to divert the minds of his pupils from the principal subject of investigation. He should be careful that the awakened curiosity be not gratified too soon by unnecessary and superabundant aid, leaving no motive and no opportunity for effort on the part of his pupils; nor, on the other hand, be suffered to evaporate and end in despair for the want of timely and necessary aid to enable them to overcome appalling difficulties. With this view, he should intermingle with text-book instruction a due proportion of familiar lecturing, enough of one with the other to guard against the pernicious effects of excess in either. He should prepare, select, or adapt his text-books with a due regard to the capacities of his pupils, and with reference to the development and exercise of their various powers of mind, as well as the immediate acquisition of knowledge. The pupil must be made to work, but he must work voluntarily, cheerfully, and with hope. Aided too much, his

energies remain dormant; too little, they are soon exhausted, and he sinks into a state of despair, and thus both excess and deficiency produce the same deplorable result. The teacher in all his plans of government and instruction should keep in view the principal business assigned him. This, as far as intellectual education is involved, is to rouse the curiosity of his pupils and keep it awake—to furnish in a sufficient quantity wholesome food for their minds, and suitable materials for the active and vigorous employment of all their mental powers.”

It may be that in some of these suggestions I have wandered far from my subject, but, as I said at starting, and as I hope I have proved to your satisfaction, tact has such a bearing on all the work done in the school-room that it is impossible to write on one subject without dwelling at some length on the other.

As I said at the beginning of my essay, in no other profession in life is tact so necessary as in that of teaching, and in no other position is it more necessary to be enthusiastic and wide awake if one would be truly successful and useful. A dull, monotonous teacher, will have a dull, monotonous school, while an earnest, zealous, and enthusiastic teacher, will so inspire and animate the pupils that they will manifest a deep and lively interest in every exercise before them. With much truth it is said “as is the teacher so is the school.” A teacher who is kind, active, and full of tact may and *will* gain an almost unlimited influence over the minds and feelings of his pupils and lead them cheerfully onward and upward in the paths of knowledge, while, on the other hand, a teacher who is dull and lifeless will drag his pupils down to the depths of apathy and listlessness, from which it will be no easy task to draw them

forth again. If a teacher feels a lively interest in the duties of his profession he will succeed in awakening a corresponding interest on the part of his pupils and their parents, and when teacher, parents, and pupils are all actuated by a spirit of earnestness, energy, and true enthusiasm in relation to school duties, we may expect progress and improvement of the most gratifying kind, and if the teacher rightly appreciates the nature and magnitude of his work he *will* possess a spirit of true earnestness and enthusiasm. Let the teacher at all times feel that principle of love and sincere devotion to his profession which is to be regarded as the sign and measure of high souls, and which wisely directed will accomplish much, and there is little danger that he will long suffer from any want of tact. Let him not be satisfied with past success or present attainment, but let his motto ever be “onwards and upwards.” Let not then the teacher be unmindful of the nature and value of his work, but appreciating the thought so beautifully expressed by Bishop Doan in the following lines, let him be up and doing with a consciousness that at some future time reflection upon his “labours of love” will afford him the truest pleasure, and that his reward, though long in coming, will at last be sure:

“Chisel in hand stood a thoughtful boy,
With his marble block before him;
And his face lit up with a smile of joy
As an angel dream passed o’er him.
He carved the dream on that shapeless stone
With many a sharp incision,
With heaven’s own light the sculpture shone,
He had caught the angel vision.

Sculptors of life are we as we stand
With our souls uncarved before us,
Waiting the hour when at God’s command
Our life-dream passes o’er us.
If we carve it then on the yielding stone,
With many a sharp incision,
Its heavenly beauty shall be our own,
Our lives that angel vision.”

ENGLISH LITERATURE IN CANADIAN SCHOOLS.*

BY GEO. H. ROBINSON, M.A., HEAD MASTER OF THE HIGH SCHOOL, WHITBY.

FOLLOWING the introductory sketch I have given you of the history of the teaching of English Literature in Ontario, I proceed now to consider, as briefly as I can, the following topics:—

1. The meaning of the term English Literature in our schools.
2. The Commentator's Ideal.
3. The Examiner's Ideal; and
4. What I think should be the Teacher's Ideal.

1. The term Literature in the High Schools means portions of authors prescribed by the Minister of Education, to be read in such a way as to be understood thoroughly by the pupil, both as to the verbal meaning of the selection as well as to its beauty and power.

In the Public Schools there are six courses of literature open to the teacher. If he have pupils in the 6th class he may read with them the work prescribed for the Intermediate; if in the 5th class, he may read the work for third-class teachers' certificates, which consists of selections from the 5th, and which would much better be the same as that for the Intermediate; or, if in the 4th class, he may prepare pupils on the selections for the Entrance Examination into the High Schools, consisting of passages from the Fourth Book Reading Lessons; or he may read all of them, as some are laudably ambitious to do; or he may read none of them, and read instead the *Globe*, the *Mail*, or other issues of

the daily press. The latter interesting literary productions, I am sorry to say, are not yet on the programme, but perhaps we may live to see the day when the daily newspapers may have a place in some shape or other in the daily work of the school-room. I am not afraid to say that, in the hands of a judicious teacher, they could be made instruments of incalculable benefit in quickening the intelligence of pupils. It is no part of my business, nor is it my design, to state what the Public School teacher ought to do with all the courses open to him by the official programme, but I hope I shall not be thought obtrusive if I tell you what, with my present experience, I would do if I were a young teacher anxious to work up my school to a high state of efficiency. I would select the course for entrance into the High Schools, and bring my pupils as far as I could towards perfection in that course, and *then* let them try the Entrance Examination. What I would do with them after that would depend entirely upon circumstances, but I would not forget that my chief duty was to have regard to the majority of the pupils in my school.

Nothing more is required in this course than a good general idea of the sense of what is read, the meaning of difficult words and phrases, and the ability to give, in the pupil's own words, the substance of some particular lesson read in school, or in his hearing at the time of examination. The lessons are all prose selections, and no attempt need be made to

* Portion of a paper read before the Teachers' Association of the County of Ontario.

study them in reference to rhetorical force or beauty, nor would such an attempt be in the least degree desirable. It would, in the majority of instances, as far as the pupil's attempt to reproduce such information is concerned, be only effort thrown away, and would be much better devoted to something else.

Speaking from experience, it would be pleasing to know that the time-honoured custom of learning by heart, and the recitation of passages from the Readers, is still flourishing in the Public Schools. It is in them that the foundation of real success in the study of literature must be laid, and I am persuaded that we in the High Schools can never build upon the foundations laid in them a noble edifice of imperishable thought, unless our pupils come to us with their young minds stored with the treasures of their Readers. Let, by all means, the good old custom of having readings, recitations, and declamations on Friday afternoons be kept up in full vigour. Let our boys and girls be encouraged to learn the "winged words" of the poet, or of the orator, and I feel certain that whether he understands them or not, whether he fails to feel one throb of emotion, or to be charmed with one touch of fancy, as he recites them *now*, the time will come in his life when as teacher himself, as preacher in the pulpit, as counsel at the bar, as farmer at the plough, as parent with the child, he will, "reaping at last in his mind the produce of the deep furrow," be able to point the moral, flash forth his own thoughts clothed with beauty and power, add fresh pleasure to the life of children, or draw solace or inspiration for his own heart from memory's perennial spring.

In proceeding to investigate the Commentator's idea of English literature for school purposes, one cannot fail to be surprised at the rapid multiplication of manuals designed to illus-

trate the meaning of standard authors, and we must be gratified to know, that in this province and from our own ranks have been found those able and willing to meet the requirements of the occasion. It would be tedious in this paper to roam over the whole field of school-editions of the English classics, and to dwell on their individual merits, nor indeed is this necessary. They all resolve themselves into two classes, the one leaving something for both student and teacher to do in the way of original investigation, and the other, nothing to do but quietly and thankfully to appropriate the results of the editor's labours.

To the former class belongs the famous edition of Shakspeare now in progress of issue from the Clarendon Press, of which portions have been, and are, much used in the High Schools. It is an edition that has received the warmest encomiums of the highest authorities and as such claims from teachers and students an investigation into the characteristics which have brought to it so much praise.

The aim of the editors seems to be to give help to the reader only where help is needed, carefully to avoid loading the commentary with anything that is not strictly relevant to the meaning of the text, and scrupulously to refrain from interfering with the reader's own judgment as to the style, power, and beauty of the play. The principle of resolving textual difficulties by collating parallel passages from the author's other works, is clearly developed. To each play there is an introduction, giving all that is known as to the sources from which Shakspeare derived his materials. The original documents are given, so that the student may have his materials for criticism at first-hand. Passages supposed to be interpolated are indicated, and the editor's reasons for suspecting the text are given in such a way that the student cannot fail to apprehend the

rationale of true criticism, and to get possession of an instrument by which he may prosecute his own investigations. The difficulties that occur in the syntax, as far as they arise from the growth or change of the language, are explained, but there is not the slightest attempt to make the text the invariable occasion of lessons in Parsing and Analysis. This is just as it should be: when we gather at the feast of wisdom and the flow of soul, why leave the banquet for a lecture upon the physiology of the viands?

Disputing the place of favour in our schools with the Clarendon Press series, is the American edition of Shakspeare by Rolfe. In his commentary on textual difficulties, he follows closely the Cambridge editors, but he has prefixed to the Plays, and scattered throughout the Commentary, what some choose to call a valuable body of criticism, excerpts from the standard critics. The student is at once introduced to the opinions of others,—often very conflicting opinions,—and before he has read a line of his author, he has his mind made up on all the debatable questions. Possessed of the opinions of critics whose great names compel submission to their dicta, he has no opinion of his own, can form none—and occasionally can need none. This method of cramming the pupil's mind with ready-made views, is, in my opinion, most pernicious. What would be thought of acquiring a knowledge of mathematics by committing to memory the examples and the answers, and never solving a single problem! The proper place for such editions is in the hand of the judicious teacher, who, if he accept the dictum of the critic (and he should not hasten to do this), should endeavour by a careful study to lead his pupil to reach the same conclusion. Otherwise there may be "cram;" there may be glibness in the class, or, at the call of a written examination, the

ability to cover page after page with an undigested, unassimilated mass of criticism, but there will never be upon the mind of the pupil an educative influence of any but the slightest value.

Hales's "Longer English Poems" is a work which includes Goldsmith's *Traveller* and Gray's *Elegy* and is therefore now often to be found in the hands of students who have to read these selections for their examinations. It is a work that has enjoyed a wide-spread popularity; it is the work of an acute critic, and it is especially stimulating and suggestive. There is in it an admirable introductory essay, "Suggestions on the Teaching of English Literature," which I commend to the notice of all who are not yet acquainted with it. To the Third Class Teacher who is striving to work up his Literature by himself, and who will follow out Hales's suggestions, it will prove of invaluable assistance. If I should undertake to show you how I think English Literature should be taught to a class, I would only have to travel over the course marked out by this editor. If you have not the work, let me advise you to get it; and if you have read it, what can you do better than read it again? You may not agree with all he has to say, nor may you feel inclined to follow his method, and you may even detect some trifling errors, but you will soon discover that the direction in which he seeks to lead you is one that will be helpful to you.

Some valuable remarks on "The Teaching of English Literature" are to be found in the general introduction to the British India Classics, as found in Jeaffreson's edition of Scott's *Lady of the Lake*. He insists upon the necessity of the pupil having access to books of reference, so that he may have the power and pleasure of acquiring knowledge for himself.

I am persuaded by daily experience that a pupil is injured beyond measure

by having every scrap of knowledge prepared for him, and that the spoon-feeding, rocking and dandling process, will never make a vigorous, independent race of scholars.

I cannot very well pass by in this connection the efforts of our native editors — Mr. Seath on “Paradise Lost,” Messrs. Williams and Tait on Gray’s *Elegy* and the *Traveller*, Messrs. Armstrong and Davies on “Third-Class Literature.” All these gentlemen have written manuals, we may say without giving offence, not so much for the purpose of disseminating sound views on the teaching of Literature, as of enabling candidates to pass their examinations. The thought that money might be made out of such literary ventures would, I think, hardly induce anyone in Ontario to prepare a school-book. These little volumes are then the outgrowth of our system of written tests, and their merits will have to be determined by a careful study of these written tests. The consequence is that there has been of late in Ontario an incredible amount of note-reading, and an immense accumulation of second-hand bits of knowledge.

Mr. Seath’s edition of “Milton,” while evidently prepared for candidates going up to the teachers’ examination, contains much that is extremely valuable in suggesting a proper study of the English language. It is far in advance of the ordinary class-book. I have not time to notice the other works of our native press except to remark that Mr. Armstrong and Mr. Chase, in their little books, give some very valuable hints on the teaching of an English lesson. Messrs. Williams and Tait’s manual, and that of Dr. Davies, will also be found of much use.

I come now to a division of my subject that has great interest for us of the teaching profession, to wit: The Examiner’s idea of how English Literature ought to be taught and studied.

With regard to the examinations conducted by the Education Office, we have not had as yet much opportunity of testing the truth of the adage, “Many men, many minds.” There have now been held many Departmental Examinations, in all of which it will be found that the papers in Literature have been prepared by the same examiner, thus affording us ample opportunity to learn what he means by the subject. Nor has the Central Committee left us in the dark as to the direction they desire this subject to take in the schools. In the October number of the *Journal of Education*, 1875, will be found a report from the Central Committee of Examiners, communicated in a letter from the Rev. Professor Young, the Chairman, respecting the teaching of Literature in the Normal Schools. Amongst other interesting matters in the report will be found the following:—

“While the Committee will attach due weight to a close study of the selections, they will consider it of far greater consequence that candidates should show themselves able to enter into the spirit of the authors read and to appreciate the beauty of their style. They will prefer a knowledge of important facts and general features to the most minute acquaintance with details if unaccompanied by an ability to distinguish what is important from what is not.”

Nor are we left uninformed as to the Examiner’s ideal, for in the January number of the *Journal of Education* for 1876, we find published as a guide to teachers a paper on the study of higher English in schools, addressed to the Chairman of the Central Committee, by J. M. Buchan, M.A., Inspector of High Schools.

In this paper Mr. Buchan expresses the view: “That candidates for first-class certificates and pupils in the higher department of the High Schools approximate sufficiently in regard to

knowledge and ripeness of intellect to render it advisable that they should be taught in the same way. Pupils in the lower departments—*i.e.*, candidates for the intermediate, second and third-class certificates—will require to have the method of instruction adapted to their less mature years.

“With all classes of pupils alike the main thing to be aimed at by the teacher is to lead them clearly and fully to understand the meaning of the author they are reading, and to appreciate the beauty, the nobleness, the justness, or sublimity of his thoughts and language. Parsing, the analysis of sentences, the derivation of words, the explanation of allusions, the scansion of verse, the pointing out of figures of speech, the hundred and one minor matters on which the teacher may easily dissipate the attention of his pupils, should be strictly subordinated to this great aim. The masterpieces of our literature were written not to serve as texts whereon exercises of various kinds might be based, but to convey to others in the most attractive form an account of the thoughts and feelings which pervaded the minds of their authors: so that if we wish to benefit in the highest degree by their perusal, we must make ourselves at home with their writers and inhale for a time the mental atmosphere which they breathed. It is essential that the mind of the reader should be put *en rapport* with that of the writer.”

Mr. Buchan then goes on to say: “But though the works of Shakspeare and Milton and our other great writers were not intended by their authors to serve as text-books for future generations, yet it is unquestionably the case that a large amount of information may be imparted and a very valuable training given if we deal with them as we deal with Homer and Horace in our best schools. Parsing, grammatical analysis, the derivation of words, prosody, composition, the history of the language,

and, to a certain extent, the history of the race, may be both more pleasantly and more profitably taught in this way than in any other. It is advisable for other reasons also, that the study of these subjects should be conjoined with that of English literature. Not only may time be thus economized but the difficulty of fixing the attention of flighty and inappreciative pupils may more easily be overcome.”

The writer then proceeds to show how the study may be carried on in connection with the study of an English classic by an advanced class. Much as I would wish, for the benefit of young teachers, to give Mr. Buchan's views on this topic, I shall have to limit myself to the remark that his views in the main coincide with those of Hales. They are to be found *in extenso* in the previously mentioned number of the *Journal of Education*.

Let me now proceed to inquire how far the ideal has been attained and in what direction the teaching of English Literature in this Province, as far at least as the High Schools are concerned, is moving; for I take it for granted that the general character of an examination determining the money-grant to schools, forms the general character of the teaching. There have now been seven examinations for the Intermediate and all the papers on English Literature have been set, I believe, by the same Examiner. In making an analysis of the nature of the questions and their value I have not been able to go farther back than the papers of December, 1877, though the most cursory examination of those set prior to that date will show that the character is constant. Taking, then, the last four examinations, and adopting the Examiner's own subdivision of topics, as published in the *Journal of Education*, I find that we may tabulate the character of the questions and the marks assigned to them as in the annexed schedule.

ENGLISH LITERATURE.

Examination Papers.

July, 1879.	Dec., 1878.	July, 1878.	Dec., 1877.	
22	16	41	12	1. Meaning of the Author.
7	6	11	9	2. The Nobleness, Sublimity and Justness of Thought.
14	18		2	3. Synopsis of Contents, Plot, etc.
16	10	27	22	4. Life and Times of the Author.
8	5			5. Difficulties in Analysis, Parsing, etc.
8	10	12	4	6. Etymology.
5	7		5	7. Allusions.
	16	10	13	8. Metre.
6	12	10	22	9. Figures of Speech.
15			9	10. Critical Estimate of the Work.
			11	11. Quotation.
			12	12. Paraphrase.
			13	13. Connection of the Extract.

GRAMMAR PAPERS.

On the same extract as the Literature for the Examination.

July, 1879.	Dec., 1878.	July, 1878.	Dec., 1877.	
20	16	24	17	Analysis.
95	36	42	36	Parsing.
7	18	20	16	Derivation.
	8		5	Distinction of Words.
				Prosody.

I have added the marks given on English Grammar according to a subdivision uniformly observed by the Examiner in that subject, and I ask you to observe that the extracts for Analysis and Parsing are all taken from the selections for English Literature. Now let it be observed that all that the candidates for the Intermediate or Second-class Provincial certificates required to make to effect "a pass" was 20 per cent. of the marks on the subject. An examination of the schedule will show that it was possible at every examination to pass "without having any clear idea of the meaning of his author, or any idea of the noble-

ness, the justness or sublimity of his thoughts and language," without any idea of the subtle essence of poetry, and further that the masterpieces of our literature have served as texts whereon exercises of various kinds have been based—in a word that teachers of literature have been compelled to make that subject the occasion of interminable exercises in parsing, analysis, derivation, and prosody.

I have not time to go into an analysis of what has been done in other Departmental Examinations, but I have no doubt the results would be substantially the same.

It is only proper here to say that the Examiner is in no way to be blamed for having failed to reach his ideal. If he had set papers in accordance with his ideal, not one candidate in a hundred would have passed, for the amazing difficulty (which none understands better than he) to a young candidate of analysing the influence of soul upon soul, or, in the poet's sense, of bodying forth the form of things unknown, would have assuredly barred all progress except to the most brilliant minds.

It would appear, then, to ensure the passing of candidates, there must be a failure to approach the true ideal. By strict logical induction we are led to inquire, is such an examination necessary, and is it not destructive of proper methods of teaching the subject? The conclusion is inevitable: If it is compulsory to pass our pupils on such examinations, we must teach down to the level of the questions, or if we aim at the higher ideal, we may fail to make a pass and lose what is regarded in so many quarters as better than culture or education—money.

In leaving this part of the subject, I would draw the inference that the best results likely to flow from the study of English authors in our schools are not attained or attainable under the so-called system of "Payment by Results,"

and that this conclusion, if correct, should form an argument, in addition to countless others, for the entire reorganization or abolition of the system. No mere system of written tests, not the most clever or experienced adepts in the art of setting questions, not the most ingenious apparatus for testing the essence of poetry or the flavour of rhetoric, can determine the money value of Literature as an educative influence, or tabulate its effects upon the youthful mind. There is no subject in the whole curriculum that suffers so much from the debasing influence of the money grant as this, and though "the trail of the serpent is over them all," it is here that it is slimiest and deadliest.

It was my intention to inquire somewhat fully into the style of papers set upon this subject in London University, at the Oxford and Cambridge "Locals," and especially at Toronto University, which moulds to some extent the character of the teaching in the Upper School, but the limits of your time will admit of nothing but the slightest reference to the papers set at the Provincial University.

These are, as might be expected, different from those set in the High Schools, chiefly, I presume, because University candidates are generally of somewhat mature mind and consequently better able to generalize, to exercise the critical faculty, and to grapple with abstruse subjects. The Matriculation Pass Paper this year on "Milton," however, was not, I think, such as to call forth an expression of these powers or to exercise a wholesome influence upon either the candidates or the teachers in their future efforts. The chief objection to it is that a candidate of average ability could pass very well upon the paper without ever having read the author. Such a possibility in any examination surely defeats the object of the Senate in placing it upon the curriculum, and would, if of frequent occurrence, chill

the ardour of young students and disgust them with a subject that could be treated so much to their disadvantage, —to say nothing of the paralysis that would fall upon the efforts of those, who might not be able without compulsion or bribery, to teach up to the standard of 1875.

It follows from this, also, that in this subject, more perhaps than in any other, we must not be content with teaching up to the mere examination standard; and, quoting Lord John Russell's famous ejaculation, "Let us rest and be thankful," cease to exert ourselves further.

Since, in other subjects, the ability to do something, but in literature the ability to feel something, is the true measure of the value of the pupil's training, while we endeavour to put our pupils in a position to pass as now required, we must carefully aim at the higher mark.

The examiner will not ask of the pupil—Do you love good literature? The master notwithstanding this, must try to implant in the pupil's mind a love of good literature. The examiner will not ask—Has this word "burned you through with a special revelation?" The master must watch and wait for the flashing eye and the glowing cheek that mark the electric contact of soul and soul. The examiner will not ask him—Have you inhaled the mental atmosphere which the poet breathed? The master will have to satisfy himself that his pupils are in a mental sense as Euripides described the Athenians in a material sense:

"Ever delicately marching
Through most pellucid air."

He must not leave them until they can say something better of a noble writer than that he is "good" or "jolly" or "splendid" or "nice" or any other of the stupid phrases that silly people inscribe upon the volume from the lending library. To this end

the question of Philip to the Eunuch must in some shape be ever on his lips—"Understandest thou what thou readest?" Happy shall he be if he catches the humble yet earnest reply—"How can I, except some man should guide me?" Engaged upon the study of a noble poem he must be guided to see that it is not only the product of genius, but that it is also, in some degree, a work of the highest art. He must not only be cultivated to feel emotions of pleasure or of horror, to feel, in short, his heart-strings vibrate in unison with the chords of the poet's lyre, but he must see how the proper effect is produced. He must feel in deed and in truth that—

"The poet in a golden clime was born,
With golden stars above;
Dowered with the hate of hate, the scorn of
scorn,
The love of love.

He saw thro' life and death, thro' good and ill,
He saw thro' his own soul.
The marvel of the Everlasting Will
In open scroll

Before him lay: with echoing feet he threaded
The secretest walks of fame:
The viewless arrows of his thoughts were
headed,
And wing'd with flame.

Like Indian reeds blown from his silver tongue,
And of so fierce a flight,
From Calpe unto Caucasus they sung,
Filling with light

And vagrant melodies the winds which bore
Them eastward till they lit;
Then, like the arrow-seeds of the field and
flower
The fruitful wit

Cleaving took root, and springing forth anew
Where'er they fell, behold,
Like to the mother plant in semblance grew
A flower all gold.

And bravely furnished all abroad to fling
The winged shafts of truth,
To throng with stately blooms the breathing
spring
Of Hope and Youth."

I cannot leave the subject without saying to my junior fellow-teacher how extremely valuable the study of this subject is to the teacher himself, and how recreant he would be to his duty if he did not seek, by every means in his power, to keep awake in himself a love of our noble English Literature. Whether we are fond of the Classics, or Mathematics, or the Natural Sciences, or any other of the great departments of human knowledge, we ought every day of our lives to read and meditate upon some page of this priceless heritage. I will not seek to flatter your pride or augment your professional importance by saying how valuable may be your labours and your influence by such a course of reading, but I will say that you will,

"To your own selves be true,
And it will follow, as the night the day,
You cannot then be false to any man."

I shall conclude with the words of the great French critic Sainte-Beuve:

"All of us who are supporters of the natural method in literature, and who apply it according to our several methods in different degrees, all of us who are artisans and servants of this same science which we strive to render as exact as possible without repaying ourselves with vague notions and vain words, let us then continue to observe without ceasing, to discover the conditions of works notable in different ways, and the infinite variety of forms of talent; let us compel them to give an account of themselves, to inform us how and why they are of this and that fashion or quality rather than another, though we should never explain everything, and there must remain, after all our labour, a last point and as it were a last citadel which cannot be reduced."

ARTS DEPARTMENT.

[NOTE.—We give this month a selection from the Classical Examination Papers of the University of Toronto, for Senior Matriculation; also a number of Original Mathematical Problems from several esteemed Contributors. ARCHIBALD MACMURCHY, M.A., Math. Ed. C. E. M.]

UNIVERSITY OF TORONTO ANNUAL EXAMINATIONS, 1879.

SENIOR MATRICULATION AND SUPPLEMENTAL.

LATIN.

I.

Translate :

Cum hæc dicerentur audirenturque et deploratum pæne Romanum nomen in concilio sociorum fidelium esset, dicitur Ofillius Calavius Ovii filius, clarus genere factisque tum etiam ætate verendus, longe aliter se habere rem dixisse: silentium illud obstinatum fixosque in terram oculos et surdas ad omnia solatia aures et pudorem intuendæ lucis ingentem molem irarum ex alto animo cientis indicia esse. Aut Romana se ignorare ingenia, aut silentium illud Samnitibus flebiles brevi clamores gemitusque excitaturum, Caudinæque pacis aliquanto Samnitibus quam Romanis tristicrem memoriam fore: quippe suos quemque eorum animos habiturum ubicumque congressuri sint, saltus Caudinos non ubique Samnitibus fore. LIVY ix. ch. 7.

1. Mark the quantity of *ubique*, and give the meaning of the same word with the other quantity.

2. What would be the more common form instead of *fore* here?

II.

Translate :

Mercuri, facunde nepos Atlantis,
Qui feros cultus hominum recentum
Voce formasti catus et decoræ
More palæstræ,

Te canam, magni Jovis et Deorum
Nuntium curvæque lyræ parentem,
Callidum, quidquid placuit, jocosum
Condere furto.

Te, boves olim nisi reddidisses
Per dolum amotas, puerum minaci
Voce dum terret, viduus pharetrâ
Risit Apollo.

Quin et Atridas duce te superbos
Ilio dives Priamus relicto

Thessalosque ignes et iniqua Trojæ
Castra fefellit.

Tu pias lætis animas reponis
Sedibus virgaque levem coërces
Aurea turbam, superis Deorum
Gratus et imis.

HORACE, *Odes* I., 10.

1. Scan the first stanza, marking the quantity of each syllable, and give the names of the metres.

2. Parse *Mercuri*, *formasti*, *reddidisses*, *pharetra*, *superis*.

3. Decline together *voce minaci*.

4. Give the principal parts of *canam*, *condere*, *terret*, *fefellit*, *coërces*.

5. Explain the force of *animas reponis*.

III.

Translate :

Talibus inter se dictis ad tecta subibant
Pauperis Evandri; passimque armenta videbant

Romanoque foro et lautis mugire Carinis.
Ut ventum ad sedes: "Hæc," inquit, "limina victor

Alcides subiit; hæc illum regia cepit.
Aude, hospes, contemnere opes, et te quoque dignum

Finge Deo, rebusque veninon asper egenis."

Dixit : et angusti subter fastigia tecti
Ingentem Ænean duxit, stratisque locavit,
Effultum foliis et pelle Libystidis ursæ.
Nox ruit, et fuscis tellurem amplectitur alis.

VIRGIL, *Æneid* viii, 359-369.

1. Give the derivation of *tecta*, *armenta*, *stratis*.
2. Parse *ventum*, *finge*, *effultum*.
3. Explain references in *Romanoque foro*, *Carinis*, and *Alcides*.
4. Epitomize the story of the *Æneid*.

LATIN GRAMMAR.

FOR ALL CANDIDATES EXCEPT THOSE FOR
HONOURS IN SENIOR MATRICULATION.

1. Decline throughout the sing. *socer*, *rete*, *incus*.
2. Give the etymology, gender and gen. sing. of *crinis*, *comes*, *cos*, *frons*, *supellex*.
3. Distinguish between *viri* and *virī*, *re-ducī* and *reducī*, *diffidit* and *diffidit*.
4. Give a list of feminine nouns of the fourth declension.
5. Compare *antiquus*, *felix*, *humilis*, *dives*, *idoneus*, *nuper*.
6. Decline throughout (a) the singular *ipse*, *alteruter*, and (b) the plural *ambo*.
7. Give the Perfects, Supines, and Infinitive Moods of *seco*, *vendo*, *faveo*, *arceo*, *misceo*, *reor*, *operio*, *meto*.
8. What do you mean by *Inchoative* or *Inceptive* verbs? State how they are formed, giving examples.
9. Translate : (a) He hid them by thirties in a cave. (b) Nothing prevents me from setting out to-day. (c) He lived at Corinth four years and came to Rome in the consulship of Lucullus.

LATIN.—HONOURS.

I.

Translate :

Ex eo tempore in duas partes discessit civitas : aliud integer populus fautor et cultor

bonorum, aliud forensis factio tenebat, donec Q. Fabius et P. Decius censores facti, et Fabius simul concordiae causa simul ne humillimorum in manu comitia essent, omnem forensem turbam excretam in quattuor tribus conjecit, urbanasque eas appellavit. Adeoque eam rem acceptam gratis animis ferunt, ut Maximi cognomen, quod tot victoriis non pepererat, hac ordinum temperatione pareret. Ab eodem institutum dicitur, ut equites idibus Quinctilibus transveherentur.

LIVY ix., ch. 46.

1. Give the principal parts of *discessit*, *excretam*, *pepererat*.
2. Write explanatory notes on *factio forensis*, *in quattuor tribus*, etc., *idibus quinctilibus*.
3. Distinguish *nomen*, *pronomēn*, *cognomen*, *agnomen*.

II.

Translate :

Dicimus C. Verrem, quum multa libidinose, multa crudeliter in cives Romanos atque socios, multa in deos hominesque nefarie fecerit, tum præterea quadringentiens sestertium ex Sicilia contra leges abstulisse. Hoc testibus, hoc tabulis privatis publicisque auctoritatibus ita vobis planum faciemus, ut hoc statuatis, etiam si spatium ad dicendum nostro commodo vacuosque dies habuissemus, tamen oratione longa nihil opus fuisse. Dixi.

CICERO IN VERREM, Act I., 56.

1. *Quadringentiens sestertium*. Give the amount and explain the construction.
2. Write a succinct account of this trial.

III.

Translate :

Venerat antiquis Corythi de finibus Acron, Graius homo, infectos linquens profugus hymenæos :

Hunc ubi miscentem longe media agmina vidit,

Purpureum pennis et pactæ conjugis ostro ;
Impastus stabula alta leo ceu sæpe peragrans
(Suadet enim vesana fames) si forte fugacem
Conspexit capream, aut surgentem in cornua
cervum,

Guadet hians immane, comasque arrexit, et hæret

Visceribus super incumbens; lavit improba
teter

Ora cruor:

Sic ruit in densos alacer Mezentius hostes.

Sternitur infelix Acron, et calcibus atram

Tundit humum exspirans, infractaque tela
cruentat.

VIRGIL, *Æneid* X., 719-731.

I. Scan the first two lines of the extract, marking the quantity of each syllable, and explaining any peculiarities.

2. Parse *pac̄t̄, impastus, ar̄rexit, lavit*.

3. Give the force of the inseparable particle, *ve*.

IV.*

Translate:

Cingitur ipse furens certatim in prælia
Turnus:

Jamque adeo, Rutulum thoraca indutus, ænīs
Horrebat squamis; surasque incluserat auro,
Tempora nudus adhuc; laterique accinxerat
ensem;

Fulgebatque altā decurrens aureus arce;

Exsultatque animis, et spe jam præcipit hos-
tem

Qualis ubi abruptis fugit præsepia vinculis
Tandem liber equus, campoque potitus aper-
to,

Aut ille in pastus armentaue tendit equarum,
Aut assuetus aquæ perfundi flumine noto,
Emicat, arrectisque fremit cervicibus alte
Luxurians; luduntque jubæ per colla, per
armos.

Ibid, XI., 486-497.

I. Cite a parallel passage from a Greek author.

2. Parse *tempora, potitus*, and *emicat*.

I. Explain the principal uses of the Ablative case, giving short examples.

2. Parse and explain the words italicised in these phrases: *Mac̄te esto virtute pro J̄up̄iter*, *Manlius locutus fertur*.

3. Give the Perfects, Supines and Infinitive Moods of *tono, fleo, pergo, lacesso, ordior, adipiscor*.

4. Translate the following: (a) It seems that Cicero erred. (b) Ambassadors came from Rome to complain of injuries. (c) This is too good to be true.

* Special importance is attached to the accurate translation of the extract.

ALGEBRA.—PROBLEMS.

40. Sum, by common Algebra, the series:

$$\frac{7}{3 \cdot 4 \cdot 5 \cdot 6} + \frac{11}{4 \cdot 5 \cdot 6 \cdot 7} + \frac{17}{5 \cdot 6 \cdot 7 \cdot 8} + \frac{25}{6 \cdot 7 \cdot 8 \cdot 9} + \text{etc.}$$

to n terms, and also to infinity.

41. Sum the series:

$$\frac{11}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \frac{35}{3 \cdot 4 \cdot 5 \cdot 6 \cdot 7} + \frac{81}{4 \cdot 5 \cdot 6 \cdot 7 \cdot 8} + \frac{155}{5 \cdot 6 \cdot 7 \cdot 8 \cdot 9} +$$

$\frac{263}{6 \cdot 7 \cdot 8 \cdot 9 \cdot 10} + \text{etc.}$, to n terms, and also to infinity.

PROFESSOR EDGAR FRISBY, M.A.,
Washington Naval Observatory.

42. ABC is any triangle inscribed in a given circle, $ABEC$, of which AE is a diameter. AQ bisects angle between AE , and the perpendicular from A on base BC ; shew that angle $BAC =$ angle subtended by arc QC at centre of circle.

43. The first term of a series is a , the second term is b , and each subsequent term is a Geometric mean between the two preceding terms; shew that the n^{th} term is

$$b \left(\frac{a}{b} \right)^{\frac{n-2}{3} \cdot \frac{2 - (-1)^n}{2}}$$

44. Sum the series $1 + 0 + \frac{1}{2} + \frac{1}{4} + \frac{3}{8} + \frac{1}{16} + \frac{1}{32} + \frac{3}{64} + \dots$ to $2n$ terms, and hence find the product of the first $2n$ terms of the series in Question 43.

D. FORSYTH, B.A., *Math. Master,*
High School, Berlin.

45. In a given triangle to inscribe a triangle equiangular to a given triangle.

46. Through a given point to draw a straight line so that the parts of it intercepted between that point and perpendiculars drawn from two other given points may have a given ratio.

47. $ABCD$ is a square, AC a diagonal, and E the middle point of AD . Shew that the intersection of BE with AC is a point of trisection of AC .

48. In the figure of (47), if F be the point of intersection of BE with AC , and FG be drawn to CD , parallel to BC , and DH perpendicular to BE , shew that the angle DFG is equal to DAG .

49. In the figure of (48) shew that the rectangle HE, EF is equal to a twelfth of the whole square.

(47, 48, and 49 are from the Matriculation of 1866).

50. A quadrilateral figure possesses the following property: Any point being taken, and four triangles formed by joining this point with the angular points of the figure, the centres of gravity of these triangles lie on the circumference of a circle; prove that the diagonals of the quadrilateral are at right angles to each other.

51. Through any point of a chord of a circle other chords are drawn; shew that lines from the middle point of the first chord to their middle points will meet them all at the same angle.

52. Prove analytically (1) The angle in a semi-circle is a right-angle; (2) Angles in the same segment of a circle are equal.

53. An ellipse and hyperbola that have the same foci and centre will cut one another at right angles.

54. In No. (53), if from any point in the circumference of the circle which passes through the points of intersection of the ellipse and hyperbola, tangents be drawn to those curves, they will be at right angles.

55. Find the condition in order that two given equations of the second order may represent similar and similarly situated curves.

$$\left. \begin{aligned} 56. \text{ Solve } x + y + z &= 11 \\ x^2 + y^2 + z^2 &= 39 \\ yz &= 3x(z - y) \end{aligned} \right\}$$

57. If there be n straight lines lying in one plane the No. of different n -sided polygons formed by them is $\frac{1}{2} n(n-1)$

58. Resolve $2x^3 - 21xy - 11y^3 - x + 34y + 3$ into factors of the first degree.

59. Find the continued product of n such

trinomials as $x^3 - ax + a^3$, $x^4 - a^2 x^2 + a^4$, $x^5 - a^4 x^3 + a^5$ etc.

60. Prove (by the method of Indeterminate Co-efficients) that the sum of the products of the first n natural numbers, taken two and two together, is

$$\frac{n(n-1)(n+1)(3n+2)}{24}$$

61. Show that the remainder after n terms of the expansion of $(1-x)^{-2}$ is

$$\frac{(n+1)x^n - nx^{n+1}}{(1-x)^2}$$

62. The sum of the first $r+1$ co-efficients of the expansion of $(1-x)^{-m}$ is $\frac{m+r}{m}$ r being a +ve integer.

63. A body is floating between two known fluids, and the part immersed in the lower is observed to be the same as if it were floating on the surface of a fluid formed by the mixture of equal portions of the two fluids; determine the specific gravity of the solid.

64. Two hollow cones, filled with water, are connected together by a string attached to their vertices, which passes over a fixed pulley; prove that, during the motion, if the weight of the cones be neglected, the total pressures on their bases will always be equal, whatever be the forms and dimensions of the cones. If the height of the cones be h, h^1 , and heights mh, nh , be unoccupied by water, the total normal pressures on the faces during the motion will be in the ratio:

$$n^2 + n + 1 : m^2 + m + 1$$

65. A hollow cone floats with its vertex downwards in a cylindrical vessel containing water. Determine the equal quantities of water that must be poured into the cone and cylinder that the position of the cone in space may not be altered.

66. At what angle must two mirrors be inclined so that a ray incident parallel to one of them, may, after reflection at each be parallel to the other?

67. Three circles are so inscribed in a triangle that each touches the other two and two sides of the triangle; prove that the

radius of that which touches the sides AB , AC , is

$$\frac{r}{2} \left(\frac{(1 + \tan \frac{B}{4})(1 + \tan \frac{C}{4})}{1 + \tan \frac{A}{4}} \right),$$

r being the radius of the circle inscribed in the triangle.

68. If $\frac{a+cx}{c+ax}$ be expanded in series as-

cending by powers of $(1-x)$ and $(1+x)$, and A and B be the coefficients of $(1-x)^n$ and $(1+x)^n$ respectively; then

$$\frac{A}{B} = \pm \left(\frac{c-a}{c+a} \right)^{n+1},$$

the upper or lower sign being taken according as n is even or odd.

J. L. Cox, B.A., *Mathematical Master*,
Collegiate Institute, Collingwood.

PROFESSOR SEELEY of Cambridge, delivered in the theatre of the Royal Institution, to what, he said, he might regard as a kind of academical audience, some "Suggestions to Students and Readers of History." Among other educational developments in the national university in which he had taught for nearly ten years, was a growing interest in history, to which a small but earnest number of the young men had resolved to devote their lives as a study not less worthy the attention than mathematics or classics. They had given up the current notions of history, seeking to make it more reasonable and useful. Most of the recent efforts to popularise history were traceable to the impulse given by Scott's historical novels. That wizard made his personages—e.g., Louis XI.—as real as Achilles or Robinson Crusoe; and it must not be forgotten that it was amid the successive appearances of his marvellous works of fiction that Macaulay's youth and manhood were passed. Macaulay aimed to make truth as charming as fiction, just as Scott had made fiction look like truth. The historical romancer was the father of the romantic historian, and Macaulay had set the fashion of the "readable" histories which were so dear to the popular mind. It was taken for granted that if a book was difficult to read it was because the author was stupid. Teachers of history must make their subject attractive, kindle the eye of the pupil by a life-like recital of great deeds done by great men, and all the rest might be skipped. The dull details must be dropped, gaps filled up by brilliant conjectures, and Clío fulfil her function of proclaiming great events with the trump of poetry. How surely, along with this ideal of history, fiction would usurp the place of fact, and prosaic realities be ignored, the lecturer showed with great ease, and this without ignoring the real merits of Macaulay and the large school of which he was the type. One might well pity the boy who had not read "Ivanhoe," in spite of its historical blunders; and it was undeniable that at rare and long intervals there were epochs worthy of dramatic narration. Still, Professor Seeley

could not but think that Macaulay's historical method ought now to be as much out of fashion as the old stage-coach. Mr. Buckle's opposite theory of a scientific history in which the political element, the development of political constitutions and of national freedom, the actions of kings and ministers, must make way for considerations of climate, soil, food, the conditions of social phenomena, and industrial life, was dealt with no more tenderly. Buckle's book was the greatest hit since the publication of Macaulay's "History," but it delighted general readers far more than students, and was not much talked of now. Since the Greek times the political factor had always been the chief one in history, and so it was with the great writers in the seventeenth century—Hobbes, Locke, Montesquieu, and Rousseau. Buckle was right in calling attention to the importance of the social and economical elements, but not in depreciating the political, which must always be of primary moment. Professor Seeley ridiculed at the same time the fashion of making every seventh chapter or so of a history a *résumé* of the philosophy, theology, literature, art, and science of a period, all which subjects required very special knowledge in the writer to be treated to any purpose. The faithful historian had plenty to do in giving facts, not possibilities and conjectures, without going out of his way to talk of what he could hardly understand. A true science of history must, at the risk of being thought heavy, like such books as the "Principia" and the "Wealth of Nations," treat history as the biography of States. This was the best for universities and schools, because its study would be at the same time the study of politics. Nothing could be more absurd than that a self-governing people like our own should neglect such knowledge, which was one of the most crying wants of the times. History must be built on nothing but solid, prosaic fact, and it would thus become true science, a science which would grow into the most practical in the world by being made the basis of politics. At present our study of history was neither scientific nor practical.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

PROF. GOLDWIN SMITH AT UNIVERSITY COLLEGE, TORONTO.

At the recent Convocation at University College, Toronto, Mr. Goldwin Smith expressed the following sensible opinion on the question of overstudy in preparing for university contests, and on the system of competitive examinations. "It was," he said, "of course, very interesting to one who was himself once engaged in similar university competitions to be present on an occasion of this kind. It recalled to his mind the days when he stood in trembling expectation at the doors of the examination rooms at Oxford, and saw the examiners come forth with the honour lists in their hands. A good deal had been said of late against this system of competitive examinations and prizes, and a good deal had been said with truth. It had been said that the system was defective as a test. No doubt it was. All tests were more or less defective. But he did not think examination or prize tests, if well used, were more defective than tests in general. In his own experience, at least, the results of examinations generally corresponded with the previous reputations of the students. It was also said that men were overstrained by these competitions. Sometimes, no doubt, they were. He did not think they were more often strained by competitions in examinations than by athletic competitions. Far more than health was endangered by vices which wait on idleness. He did not think any man who had a tolerable constitution need injure himself by competitive examinations, if he would only manage himself well, and abstain from habits which, under any circumstances, would be injurious to his health. If a professor found one of his pupils breaking down, he would do well to inquire whether he was reading too much; but he would also do well to inquire whether

he smoked too many cigars or read too late at night. Reading late at night, he was convinced, had been the occasion of many a physical collapse, while, on the contrary, a great deal more work might be done without injury to the health by reading early in the morning. He remembered once meeting the late Lord Westbury, who was then Sir Richard Bethel. He was at the time the Attorney-General of England, with a tremendous amount of professional work during the day, and obliged to attend in Parliament at night. Sir Richard, nevertheless, looked perfectly fresh and healthy, and he (Mr. Smith) complimented him on his appearance. 'Yes,' said Sir Richard, 'and I owe it to this, that I have always worked early in the morning and not late at night.' He added, with a sort of complacency, 'I set out in life with many dear friends who have worked late at night, and I have buried them all.' Far be it from him to say that reading for examination or prizes is the highest motive for reading. Love of study and a sense of duty were higher motives for competition, and the more they could dispense with the latter, and substitute the former, the better. But they could not do that always. He was glad to see the list of matriculated students increasing from year to year. He was one of those who believed Canada would see that in the end it was better to have one great university than a number of small ones—that we should learn that instead of scattering our resources, we should concentrate them, and concentrate them here. He hoped also that the time was not far distant when the University would become the real centre of our whole educational system. Among the questions agitated in England when he was last there, was the one to which he had alluded—the question between the strengthening of the old centres of learning and the multiplication of universities; and

although Owen College had been established successfully, he thought the multiplication of universities was likely to stop there. He found also the disposition to place the educational administration beyond the sphere of politics. He had great respect for our educational administrators, and the excellent Minister of Education we had in particular, but he believed the interests of our national education should above all be kept entirely clear of politics, and it appeared to him that public thought was tending in the direction of centralizing our university system there."

REV. DR. McVICAR AT QUEBEC.

The Reverend the Principal of the Presbyterian College of Montreal, on the 17th Oct., delivered an address at Quebec, before the Protestant Teachers' Association of the province, on "The Teacher in his Study and in the Class-room," from which we make the following extract. The Reverend gentleman was elected President of the Association at the meeting. He said:—

"It might be asked, Why speak of the teacher's work in his study? but he dwelt upon the importance of a teacher's thorough acquaintance with the science, for it is a science of teaching, the science of carrying out what should be a grand 'national policy' to 'elevate the standard' of honesty and morals amongst the people and thus to diminish the number of those who become first-class public frauds and robbers of our banks. Teachers should also study at home the various dispositions and surroundings of all their scholars, and should also prepare special illustrations of their lessons; the best illustrations, he contended, being those which appealed to the eye." Speaking of the teacher in his school-room, the lecturer dwelt upon the importance of avoiding the two evils of teaching too much or too little at a time. By two or three simple questions, the point of ignorance may be gauged, and there the work of teaching begins, while such a mode of procedure serves also to take conceit out of pupils. The question was often asked how attention was to be secured. The best pre-

scriptions were to secure the proper relations between teacher and pupil, to judiciously use the eyes, to remove the centres of inattention, to ask plenty of questions of the inattentive, to use copious illustrations, and to insist upon recapitulation. He enlarged upon the necessity of more mental culture amongst teachers, and pointed out the country's march in science, art, and literature, speaking of the necessity for higher national honour, truth and integrity, the only kind of 'national policy' which can secure true and lasting prosperity. The rev. doctor's peroration upon this head, is so especially *apropos* at the present time, that we publish it *in extenso*. His paper was concluded as follows:—"What we need now for still greater national strength and progress are certain things in the moral category. Shall I say a higher sense of honour among all classes, including our public men, and a supreme regard for truthfulness. It is easily seen that defects in these respects must touch and deteriorate our national life at every point, they will influence domestic relations and public transactions, affect our buying and selling in the entire trade or traffic of the country, they must taint our judicial processes and pervert the decisions of our courts; they will pervade our daily literature and render almost worthless and even pernicious the utterances of our press. And is it not a lamentable fact, as recently declared by a leading statesman, that in order to get an approximately correct view of the doings and utterances of any public man you must read the accounts given by the paper which favours him and the paper which opposes him, and even then, you may fail to reach the truth. Now, it is in the power of our schools and institutions of learning to brand with deserved infamy this detestable vice of lying and to stamp it out of existence by calling it by its right name and making it bear its proper burden of dishonour and disgrace, and by holding up before our youth a high standard of truthfulness and integrity. This is what is needed to purify our commerce and bring back business to a safe and healthy state, and the only sort of National Policy that can ensure permanent prosperity.

"We suffer much from, and hear a good deal about, *hard times*, but we are slow to take in the thought that *hard dealings* must bring on hard times in the most productive and highly favoured countries under heaven. If men will have double prices for their goods and force their clerks to lie, and force on trade by unlawful competition, and buy and sell on credit with no rational prospects of meeting their engagements; if young men will rush into business and set up domestic establishments the very first year surpassing or at least equalling in extravagance those of persons who have made their fortunes; if wealthy men, eager to become more so, will found superfluous banks and then press hard upon each other while encouraging reckless adventurers—if men will make up their minds to over-reach, and cheat, and lie in business, there is no difficulty in seeing how hard times must inevitably overtake them. And the remedy is to be sought in persistent, universal, thorough moral culture. The vices hinted at are not to be cured in a few months or years. They grow slowly and they die hard. Great, tall, rank plants of iniquity do not grow up like Jonah's gourd in a single night. Giant swindlers undergo a long and hard process of education, and when a multitude of them infest a country it may require a generation or even more to drive them out, and there must be many a crash and exposure in business and in public life before they take their leave. It is manifest that the true way of dealing with these evils, in so far as they affect us, is to teach, and speak, and preach, and work against them. They will not disappear by being left alone. Silence respecting them is criminal. Froude, the historian, justly complained that during thirty years of church-going he never heard a sermon on common honesty, and on those primitive commandments, 'Thou shalt not lie,' and 'Thou shalt not steal.' Perhaps his experience is not unique. But we need more than sermons on these questions. We need to permeate our whole educational system with ethical training—we need ten thousand daily lessons in our school-rooms and in our homes on the elements of morals, on the principles of truth,

and right, and law, and purity, and frugality, and self-control and general government. These are the principles with which to permeate our whole system of education, and our whole country. Let reverence for truth and right reign supreme, then

'Self-reverence, self knowledge, and self-control,
These three alone lead life to sovereign power,
Yet not for power (for power of herself would come
uncalled for),
But to live by law, acting the law we live by without
fear;
And because right is right, to follow right were
wisdom
In scorn of consequences.'"

DR. RYERSON AT STRATFORD.

At the recent opening of the new High School at Stratford the late Chief Superintendent of Education for Ontario was the recipient of the following address, a compliment fully earned by the reverend gentleman at the hands particularly of those who have to do with educational affairs in any section of the province. The reply of Dr. Ryerson is appended.

To the Rev. Egerton Ryerson, D.D., LL.D.,
late Chief Superintendent of Education:—

SIR,—In inviting you to open this building, which is to be devoted to the advancement of higher education in this community, the Board of Education of the town of Stratford desire to express their sense of the great benefits which, during the course of a long official life, you have conferred on the inhabitants of Ontario, by projecting and carrying out that educational system which is at once our glory and the envy of older countries. When entering on your duties as Superintendent of Education, upwards of thirty years ago, you found the educational facilities of the country in a very low condition, the laws unsatisfactory, and as a consequence the people indifferent as to the results. But by amending from time to time the laws, and enlisting the sympathies and exertions of the people in carrying out their provisions, you are enabled to see the fruit of your labours in the schools that dot our land, where every child can re-

ceive an education that will fit him for the active duties of life. Nor is it alone in the general education of the people that your hand is seen, but, in extending the facilities for their higher education, your exertions have been rewarded with abundant success.

As the completion of this edifice marks an era in our educational history, the Board deem it not inappropriate to state what has been done by the people of this town in providing means for educating their children. A High School was established in Stratford in the year 1853. At first it was conducted in a small room in the Court House. It was afterwards transferred to the court room, and in the year 1856 removed to the building at present occupied by it, and which was erected at an expense of about \$4,000 contributed by the County Council of Perth. About two years ago this became too small for the increased and increasing numbers of pupils attending it, and it was resolved to proceed with the erection of a building which would give enlarged accommodation, and be a credit, from an architectural point of view, to the town. In this the Board feel confident they have been successful. The plan of the building was prepared, the site, of three acres, was secured, contracts were entered into, and the foundation laid in July, 1878. The cost of the building, site, and furniture will amount to about \$28,000, and an examination will show that it is surpassed in external beauty and internal accommodation by no similar structure in the Province. In this connection it may be stated that the number of pupils at present in attendance at the High School is 140, under the instruction of an efficient staff of teachers—an experienced Head Master and three assistants—and it is proposed shortly to apply to the Government for the recognition of it as a Collegiate Institute.

Nor have the Board been indifferent to the progress of the public schools under their charge. Since the "old log school-house" was taken down, in 1855, the building at present used as a central school and four well-appointed ward school-houses have been erected, at a cost of \$35,000, providing accommodation for 18 departments, and

about 1,000 pupils in which intelligent and painstaking teachers are employed in imparting to the youth of the town an education which will enable them to battle successfully with the difficulties of after-life.

That you, sir, may be long spared to enjoy your well-earned leisure, as well as to witness the continued success of our national system of education, is the sincere wish of every member of the Board.

Dr. Ryerson, who was greeted with warm applause, said he had no words to express the obligations he was under to them. It was thirty-one years since he first visited Stratford in an official capacity. The town was then in its infancy. That which now afforded most satisfaction to him was the intellectual progress which had gone along with its material advancement. He proceeded to dwell upon the excellence of our school system, and acknowledged the obligations he was under to Holland for many of its best features. He pointed to the success of free schools in Ontario, and the steps taken to place the High Schools on a firm and secure footing. He had sought to impress upon the public that every citizen should have a thorough primary education so as to fit him (if desired) for the University. It had been objected that the whole community should not be compelled to support a High School which was only used by a small portion of the community. But it was overlooked that those who sent their children to the High School contributed largely to the support of the Public Schools. It was a noble indication of the intelligence and liberality of the townspeople that they had chosen for their new school the most beautiful site in the town; and the building itself, for beauty and convenience, could hardly be surpassed. He concluded by saying that after thirty years of incessant labour his heart was just as warm in the cause of education as ever, and it gladdened his declining years to witness the success of our educational system—a system whose foundations rest in the hearts of the people and cannot be easily shaken. There was a heart in the people of Canada to carry out the higher purposes of

civilization. He congratulated the Head Master of the High School, Mr. C. J. Macgregor, upon the success that had attended his teaching. No person could visit this section of country without admiring their new building. People of narrow, selfish feelings objected to the expense, but he regarded it

as a good investment. Such buildings added to the value of other property, besides contributing a large sum of money for local circulation. In declaring the new school opened, he prayed that it might lead still further to the moral and intellectual advancement of the community.

TEACHERS' ASSOCIATIONS.

CHRONICLE OF THE MONTH.

WATERLOO TEACHERS' ASSOCIATION.—This Association held its last meeting on September 5th and 6th, under the presidency of Mr. R. Alexander, Head Master of the Galt Model School. Waterloo can congratulate itself upon having as President of its Association a gentleman who is also President of the Provincial Association. Mr. W. Linton read a carefully prepared paper on "The Relation between Parents and Teachers." Mr. G. D. Lewis gave a lesson on English History, which was intelligently discussed by Messrs. Suddaby, Bingeman, Chapman and Sharman. The last named gentleman then read an essay on the neglect of certain subjects in school work, notably of Book-keeping.

The delegates to the last Provincial Convention, Messrs. Alexander and Chapman, presented their reports, which were considered as satisfactory: they received a vote of thanks for their services. One of the most interesting features of the meeting was the reading of a paper, by Mr. S. S. Herner, giving an account of his visit to the Convention of the Illinois Teachers during the recent vacation. Mr. Chapman followed with an essay on "Incentives to Study," the headings of which he judiciously placed upon the black-board, that his remarks might be more easily and intelligently followed. Mr. G. A. Chase, of the Galt Collegiate Institute, contributed a capital paper on "English Literature." The last subject dealt with was "Vulgar Fractions," by Mr. H. F. McLean,

who handled it in a thoroughly practical manner. After drawing up programmes for the next promotion examination, and also for the next meeting, the Association adjourned to meet at Berlin on the last Friday and Saturday in January, 1880.

C. B. LINTON, *Sec.*

THE WENTWORTH TEACHERS' ASSOCIATION held a very successful meeting on Friday and Saturday, October 24th and 25th, with the President, Mr. George Dickson, M.A., Superintendent of the Hamilton City Schools, in the chair. After some routine business, including the acceptance of Mr. Morton's resignation as Secretary, and the appointment of Mr. Burnard in his place, the real work began by a discussion on the Order of Numerical Signs, followed by another on the Grammatical and other difficulties of the Fourth Book. The President's inaugural address came next, which merited all the interest and attention it received. Mr. Armstrong, one of the masters of the Hamilton Collegiate Institute, took up the subject of the "Etymology of the English Language," and handled it as only a master of the subject could, his remarks on the different methods of forming words by imitation attracting especial attention. He was followed by Dr. Burns, Principal of the Wesleyan Female College, who gave an interesting and instructive lecture on "How to Teach History." In the course of the paper, he showed that history in its earliest and crudest shape took

the form of ballad poetry, while as civilization advanced it became an important department of literature. The proceedings were next varied by a studious and useful address on "Practical Botany," by Mr. E. A. Stevens.

Friday evening was devoted to a mixed entertainment, partly æsthetical and partly metaphysical. The former took the shape of musical solos and duets by Messrs. Aldons and Johnson, and Mrs. Campbell; the latter a lecture under the title of "Psychology in Relation to School Work," by Professor Young. The Professor's address was listened to with that interest which its delivery always elicits.

Next day Mr. Sutherland read a paper on "Commercial Contracts," which the Association marked its appreciation of by requesting the writer to publish it. Mr. Wright, of the Wesleyan Female College, who is accomplished in more than one science, next took up the subject "How to teach Physical Geography." This paper elicited an intelligent and able discussion at the hands of Dr. Spencer, and Messrs. Armstrong, Shepard and Fletcher. Mr. Smith, County Inspector of Wentworth, took charge of the Question Drawer, and gave lucid and instructive answers to a number of practical questions. The last subject was "The Difficulties of teaching Grammar," in the discussion of which Messrs. Armstrong, Shepard, Robertson, Carruthers, and Fletcher took a leading part. The proceedings were most pleasantly wound up by the Wentworth teachers expressing their high esteem for their Inspector, Mr. Smith, and also for his wife, by presenting him with a gold watch, and Mrs. Smith, with a silver tea service. If sterling qualities are to be the measure of a man's worth, then Mr. Smith is deserving of that high appraisal which the teachers under his jurisdiction place upon him, and we are sincerely glad to learn of the practical manner in which they have testified to their appreciation of the Inspector's services.

THE NORTH PERTH TEACHERS' ASSOCIATION.—The meeting of this Association

was held at Stratford on Thursday, Friday, and Saturday, 30th and 31st October, and 1st November, under the presidency of Mr. Rothwell, of Listowel. Two members of the Central Committee, Dr. McLellan and Mr. G. W. Ross, contributed materially to the success of the meeting, the former by an instructive address on "Algebraic Factoring," and the latter by an interesting and exhaustive paper on "School Routine" and "How to teach Reading." Rev. Mr. Croly read an interesting essay on "The Moral Element in Education." The subject of Elocution was brought before the Association by Mr. Harrison, who gave the teachers present a thorough drilling on gesticulating, pronunciation, breathing, etc. He placed the Association under a further obligation to him by giving an evening entertainment, consisting of readings and recitations. Mr. Dickenson, of the Stratford Model School, dealt with the subject, "Common Proofs of the Earth's Sphericity Examined," in somewhat the same style as Whately's "Historic Doubts of Napoleon Buonaparte." Messrs. Draper, Ellis, Munro, Ranton and Hamilton were appointed a Committee to adjust the Limit Tables for the next promotion examinations throughout the county. The following officers were then elected for the coming year: President, Mr. B. Rothwell, Listowel; Vice-President, Mr. Collins, Stratford High School; Sec.-Treasurer, Mr. J. H. Dickenson, Stratford Model School; and a Committee of Management consisting of Messrs. Hamilton, Ranton, Munro, Ellis and Draper. After this the Association adjourned to meet again next February in Listowel.

THE NORTHUMBERLAND TEACHERS' ASSOCIATION held a Convention at Campbelford, on Thursday and Friday, 30th and 31st October, with the public-spirited and respected President, Mr. D. I. Johnston, in the chair. The first subject discussed was English Literature, by Messrs. Bartlett and Slater. A paper on "Grammar" was contributed by Mr. McHenry, Principal of the Cobourg Collegiate Institute. The first evening was devoted to the President's Address

on "Wrong Tendencies in our School System." Amongst these Mr. Johnston enumerated (1) the introduction of politics; (2) centralization which interferes with the liberty of thought and action so necessary to improvement in our school system; (3) subordinating the interests of the Public School to those of the High School. The public school is and should continue to be the college for the vast majority of our children, and the public school teacher their only professor; some subjects should be introduced later in the scholar's course than they are at present, or thrown out altogether, and others, all important for their intellectual training, and the performance of the business of life, should receive more time, attention, and reiteration, to make our pupils intelligent citizens. (4) The tendency of the introduction of a system of routine at the expense of

the individuality of both teacher and scholar, especially the former, whose creative and administrative faculties have no means of being developed; and whose force of character under such a system has little opportunity of moulding the plastic dispositions of those whose training he is responsible for. (5) The tendency of attaching undue importance to examinations. Mr. Scarlett, the Inspector of Northumberland, followed with a short address.

On Friday, Mr. J. McGrath explained his method of teaching "Percentage," and Mr. Knight dealt with Algebra, dwelling principally on the importance of Synthetic Division. Mr. Service took up the subject "Errors in Teaching," and the discussion on it was sustained by Messrs. Scarlett, Stephenson, and others. This was the concluding work of the meeting.

CONTRIBUTORS' DEPARTMENT.

THE AUTHORIZED NATIONAL READERS.

Editor of the Canada Educational Monthly:

Seeing that the verdict has gone forth in this country, in favour of State Primary Education, it is important that it should be made as good as possible. The general management of the schools is deputed to the local Trustees, but the central authority at Toronto retains in its hands the most important matter of all—the preparation of the text books. When it is considered, that in most of the country districts, school-books form the chief part of the family library, it will be seen that the compilation of the Readers, especially, ought to be a work of the greatest care. This is a kind of literature, indeed, which might well be entrusted to the highest minds in the nation.

If we grant the right of the State to undertake the work of education at all, it would seem necessarily to follow that some knowledge should be imparted in the schools concerning the relationship of the individual to

the State, some knowledge of the duties of childhood, and parentage, and citizenship.

On looking over the series of Readers used in the Public Schools of Ontario, we observe a painful lack of instruction on such topics. From the Second Book to the Fifth Book, there is not—with two feeble exceptions—a single lesson on the duty of preserving health, on the duty incumbent on every individual of self-maintenance, on the foundation of human rights, and the necessity that every one should respect the rights of his neighbour, on the duty of a citizen of a free state to take an active part in the management of public affairs, to be ready to give his vote for the best candidate, never to be base enough to barter his vote for any consideration, always to obey the laws, and assist in their execution. Instruction on such subjects in state schools would seem to be all the more necessary, when we consider how crude the notions of most men are on matters connected with government. How often is the suffrage considered as a thing to be turned to the greatest pecuniary account, how many think it a

slight thing to cheat the government by smuggling or illicit distilling, how many pride themselves on keeping aloof from elections and taking no interest in politics. Instead of instruction in these most essential matters in our public school reading books, we have lots of religious reflections and devotional poetry, we have also incredible and impossible stories in abundance, the natural effect of which must be to confuse children's ideas, morally as well as intellectually. There is a very good specimen in the Third Book, written by a learned Doctor in an English University, a stupidly impossible story throughout, wherein the rewards and penalties have no relation whatever to the merits or demerits of the actors. No good purpose can be served to the young by such reading as this. Whatever view we may hold as to the genesis of the human faculties, whether we believe that they have been slowly developed by contact with an outer world in which law exists, or, whether we believe them to have been created and adapted at first to a world whose regularity of phenomena is invariable, it would seem to be necessary, before all else, that this natural constitution of things should be kept in view in the education of the young. The only justification—and it is not a sufficient one—for relating an incredible story to a child, is, that it may be a medium for inculcating a moral lesson, but what shall we say to the foolishly impossible tale of the learned Doctor in the Third book, which teaches a lesson the very reverse of moral.

If the Minister of Education would apply himself to the preparation of a national series of School Readers, he would deserve the thanks of all who are concerned about the future of the rising generation.

J. G. W.

HIGH SCHOOL INSPECTION.

To the Editor of the Canada Educational Monthly.

SIR,—Your remarks in reference to High School inspection are very well-timed, and though trenchant, are not more severe than the occasion calls for. You may not be

aware that at the last session of the Legislature this very matter engaged the attention of the members and some of the speeches made during the debate show clearly that it is not the teachers alone who feel the necessity for a change. In some cases, to my own knowledge, an Inspector has visited a school for a few hours hurriedly and sometimes fagged out with other work—university examinations and official engagements. Consequently, he has not been in a proper frame of mind to impress the teacher and his pupils with that respect for the printed financial conclusions that the public interests require. This, however, is greatly the fault of the system. Too much work is undertaken by, and expected from, the Inspectors. Let them devote themselves to their own duties mainly—the improvement of our High Schools.

High School inspection has degenerated into mere visits of observation. In my opinion an Inspector should take a class and show how it should be taught when such assistance may seem necessary. He can, in all cases, at any rate, act as a medium of communicating improved methods employed by different masters.

As this is a serious matter to us, we can afford to omit no important bearing. We all admit that the three Inspectors are highly qualified in their several departments, but the biggest toady in the profession would hesitate to assert that in the advanced stages of all subjects as now taught in our High Schools, they are equally competent, or, to put it in another form, they are not "admirable Crichtons." Some very ludicrous scenes have occurred when an effort has been made to produce the impression that they are. No end of talk has been indulged in to prove—what is now admitted theoretically and practically—that no High School master is able to teach properly all the subjects in the programme, and yet we find our High School Inspectors occasionally examining departments in which their knowledge is notoriously defective, and what is worse, apportioning money on the results of such examinations. The practice of carrying round sets of questions is one that it is now time to give up.

Besides other disadvantages, these questions are often obtained in advance by some masters from others whose schools the Inspectors have already visited. Such examinations had better be dropped. At a meeting of the Teachers' Convention which I attended a year or so ago, a resolution was passed to the effect that each Inspector should devote himself to an examination in the departments in which he is thoroughly competent to examine, and that the schools should be classified at the end of every year and a half. Nothing has come of this so far, but it is well worth the attention of the Minister. Let us have our system of education as perfect as possible, and above all let us have no sham work. If the High School master cannot teach all the advanced work in the programme, neither can the Inspector examine on it. I hope you will keep these matters before the public. The subject is a delicate one for teachers to handle, and we look to a periodical like your admirable magazine to advocate our interests.

I am, yours truly,

A HIGH SCHOOL MASTER.

October 25th.

THE TEACHER AND CIVIC PROCESSIONS.

To the Editor of the Canada Educational Monthly:

SIR,—Would you be kind enough to inform me through the columns of the MONTHLY if a Public School Board has any legal right to make use of the teachers for any other purpose than for what are usually known as school duties. It may be quite right, but it struck me as odd that the Toronto School Board should threaten teachers with dismissal for declining to march through the streets on a holiday to make a show of themselves. These teachers have been accused of putting on airs, but I fail to see why they should be expected to do what other ladies and gentlemen would probably shrink from doing.

Apart from the question of the propriety of making these demonstrations at all, I think that teachers and children should not be

looked upon as instruments in any one's hands for making a public display. If they are willing to take part in a civic show, well and good, but the tone assumed by the Board seems to me uncalled-for, tyrannical, and vulgar.

Yours, etc.,

Toronto.

JUSTICE.

—Our correspondent touches a somewhat delicate subject in the query he makes in our columns, though there should be no difficulty in candidly discussing the question at issue, and in giving an opinion upon it which should be satisfactory to both parties interested in the settlement of the matter.

We believe that the School Board has no legal right to the services of the teacher outside the school and the play-ground, and only in these during the school-hours prescribed by the regulations. Any rights of the Board beyond these are only rights by courtesy, and of course are not obligatory. In the case of the young ladies attached to one of the City schools who refused to muster with their classes at the late reception-demonstration in honour of the Governor-General and the Princess Louise, it is argued that the School Board had a right to claim the attendance of the teachers, as the muster was to take place within the usual school hours, and their presence was necessary to maintain order and decorum, and it might be added, to give assurance to the parents of the children that the latter would be carefully looked after.

We have already said that our belief is that the School Board can only legally command the teacher's services within the school-room and its immediate precincts; hence, for the special service required of any of the staff of the schools, on the occasion referred to, it could only request a voluntary attendance. In a certain sense, as it was to be a holiday parade, presumably gratifying to both teacher and pupil, as a picnic festival might be, the reasonableness of the service might have elicited a willing and unanimous response. Still we hold that it must be considered a voluntary one; and being this, it is one where individual feeling or caprice, or whatever the motive for abstention,—even if it be mascu-

line or feminine caddishness—has a perfect right to come into play.

There is, however, a circumstance to be considered in this matter, to which our correspondent evidently alludes when he says, that "I fail to see why they (the teachers) should be expected to do what other ladies and gentlemen would possibly shrink from doing," though it does not seem clear what is specially referred to, whether it be "the making a holiday show of themselves" in some civic gathering or procession, or in appearing with the school children in any extra-official or quasi-professional duty. In either case, we can readily understand the feeling which would prompt the sensitive teacher to abstain from the performance of the duty; for, as a rule, teachers are not so well paid that they might be expected cheerfully to perform extra and often irksome services, nor is their recognized status in the community such as to make them feel easy in appearing professionally in public while the community continues to rank them in a less well-assured position than the members of other professions. This, unfortunately, is a mistake which the public is slow to remedy, though school trustees and the teachers themselves are somewhat responsible for it. We sincerely wish the injustice could be removed, for nothing would be more helpful to the cause of education, and give to, and retain in, its service a better class of labourers than to exalt the status of the teaching profession, and to extend to those engaged in its high and responsible duties a fitting appreciative recognition of what the community ever owes to it. In this connection we can scarcely assure ourselves that the assembling of the schools, and the tricking out of the children, to do duty in civic parades, however laudable their object, tends to enhance civic reverence for the schoolmaster's work, or is likely to elevate his status in the eyes of the people. On occasions, doubtless, the children are themselves gratified. They get a holiday and a day's release from school-routine, and they are happy. In these days of over-cramming and much school-inspection, we often wish further grace in this respect were extended to them, and that they

had more breaks in the monotony of school-life, though we would wish them other gratification than that of lining the public streets in company with the fire-brigade and the hose-reels, and the giddy delight of risking their young lives on corporation scaffolding. From such duty, however, we can well understand the self-respecting teacher desiring to disengage himself, and our sympathy but too readily goes out to the young ladies at present under the reprimand of the Toronto School Board, and to those with them who wish to see the teachers of the country treated with dignity, gentlemanly consideration, and respect.

While we have said this, however, there is just the danger, on the other hand, of encouraging a disregard of constituted authority, and of weakening the claims of school discipline in the case of those who should be the first to respect and maintain them. Wantonly to set these claims at defiance, and, from mere fractiousness and caprice, to place oneself heedlessly out of accord with one's professional brethren, is to manifest a spirit and demeanour we of course can have nothing to say in support of. But caprice and priggishness—supposing that these were the actuating motives in the case referred to—are not indictable offences, particularly when indulged in on neutral ground and where their exhibition cannot be legitimately controlled by official power. And it is just here where the Toronto School Board, in our opinion, erred, in committing itself to the exercise of a discipline which it had no right to enforce. We have, perhaps, said more on the subject than the occasion called for, but the case which has come up, in its blurring of the lines that distinguish the region of official authority from the domain of private right, seemed to call for the lengthened remarks we have made. In any further discussion of the subject, the case would be strengthened for the independent teacher by dwelling on the undesirableness of the schools being used to furnish material for civic pageants. If School Boards will not take this view of the matter, we trust that teachers will be allowed the exercise of their judgment in being a party to them.

EDITOR C. E. M.

PUBLIC SCHOOL DEPARTMENT.

[Contributed to, and under the management of, Mr. S. McAllister, Headmaster of Ryerson School, Toronto.]

THE TEACHER'S DEPARTMENT IN
THE SCHOOL-ROOM.

Every young person has some ordeal to pass through on assuming the responsibilities of life; that of the teacher is particularly trying on taking charge of a class, or of a school. Just as you shape your conduct from the first moment that you meet the eager and scrutinizing gaze of those you are placed over, so will your success or failure be. It behoves you to make an earnest effort to begin your life's work aright, for you may thus, if you are a conscientious person, save yourself from mental anguish that has turned many a head grey. And primarily, with all the firmness of purpose you are possessed of, resolve to follow Sir Thomas Browne's advice "BE CÆSAR TO THYSELF." Many teachers go into the school-room flattering themselves with the notion that it is only the children they have to control, forgetting that their own spirit may be much more turbulent and unruly than that of any of their scholars. If you are to have any success as a teacher, you must hold a tight rein over yourself. It is true, the effort to do this may cause the greatest wear and tear on the frame, and may send you home, day after day, from your anxious task, "weary, and worn, and sad;" but you are rewarded with the pleasant reflection that by remaining master of yourself, you keep full control of your class. We do not say, show no temper, that would be asking you to abstain from using a most effective instrument in carrying on your daily work; but we say, do not *lose* it. The moment you do this, you are more or less at the mercy of your class. Who has not observed the mischievous delight children take in torturing a playfellow who is indiscreet enough to show irritability of temper? The same feeling, only in a

greater degree, is gratified in provoking the rage of a teacher, whether it displays itself in unreasoning chastisement, or is allowed to fume itself away in impotent scolding.

It is true, the teacher might have for his type such a one as Goldsmith vividly describes, whose very frown caused terror in the school. A schoolmaster of this kind may have his vanity fed by a very agreeable sense of power, but no one who has the advancement of his scholars as his chief motive, will allow himself to stand in such a relation as this to them; if he does, how are they to learn to think for themselves, or to exercise self-control? What chance is there for development of mind or character, when both are overshadowed by an ill-regulated power that dwarfs both. "Be ye angry and sin not," neither against yourself nor your scholars, and you will thus far be, in reality as well as in name, the master or mistress of your school.

A teacher was once remonstrating with a female assistant for violently rebuking a scholar for some misconduct; she pleaded that it was caused by an outburst of uncontrollable temper, and he, in pointing out that that it was her duty to try to exercise complete mastery over herself, said that if he were like her, he would be out of temper twenty times a day; she answered with an incredulous smile that he had no temper, little thinking that this was the highest compliment she could have paid him.

Well directed and firmly controlled anger may be made a most effective instrument in education, but it must be under the guidance of a sound judgment, and as much at command as the instruction the teacher has to convey. Thus used, and tinged with a spice of indignation, it may become as terrible as Jove's thunder.

We will relate an anecdote of school life as an illustration of our meaning. A class in a school was one morning disturbed by a violent blow at the door; when the teacher went to see the cause, he found a stone lying on the floor. He was not long in coming to the conclusion that the disturbance was caused by two truant-players, who were seen hovering about the school. When they returned to school he taxed them with the act, and the one he least suspected admitted it. This lad took his punishment without flinching, and as if it was most righteously deserved. A day or two afterwards, the teacher had to settle a dispute about a small microscope, which the culprit was in the act of trading with another boy. On inquiry, he found this had been given to him by his truant companion, and when pressed to state why it had been given, he confessed it was for taking the punishment his companion deserved for striking the door. Here was a clear case for the exercise of indignation as well as of anger; indignation at the baseness of the boy who allowed his innocent companion to be punished for *his* fault, and anger at the wanton disturbance caused by throwing the stone at the door. To have let such misconduct as this pass with a phlegmatic reprimand, would have been to lose a golden opportunity to shew the effect such base conduct must have on all right minded people. You may see experienced teachers who seem to have the faculty of conducting the work of the school-room, day after day, without a ripple of temper on the part of either teacher or of scholar. Depend upon it, the "faculty," in most cases, is nothing more than an admirable habit of self-management, acquired only after passing through many trials of temper and ruffings of one's equanimity, which must be your schooling if you would attain to the same placid command of yourself. Take Rowland Hill for an example, a sketch of whose career as a teacher we shall give in our next issue. Though he was most successful in managing a large school, he had so violent a temper, that, as a desperate means of controlling it, he invited his scholars when he lost it before them, to publicly remind him of the fact.

It is a common and a serious fault with many young teachers, and with many who are not young, to lay open the weaknesses of their own character before their scholars. This is very unwise. Children can best acquire knowledge, and can be best trained under those whom they regard with feelings of respect, if not of awe. If, however, they find in their teacher much that is commonplace, or that is liable to provoke their ridicule, they cease to place themselves in that attitude towards him most helpful to their becoming successful scholars, and soon prove the truth of the proverb that "Familiarity breeds contempt." No teacher is a hero to his pupils who "wears his heart on his sleeve for daws to peck at." He should be forever on the watch to keep from view those points of his own character that would weaken his influence over his class, and ever to bring into play those that would wholesomely and effectively increase it.

ECONOMISE YOUR VOICE.

The voice is a precious instrument in school-room work when used with care. It should never be resorted to when a look or a sign will do instead. It should not be raised above the acoustic requirements of the school-room, nor as if the speaker were the captain of a ship, accustomed to talk with the winds, nor in the tones of a carter addressing his horses. It should rather be like "the still small voice" that drew the recalcitrant prophet from his cave. A noisy teacher makes a noisy class, and when there is constant noise in a school-room very little successful work can be done. The voice should be kept under rigid control, particularly when there is any danger that its exercise would only reveal a sense of impotence. Hence

AVOID THREATENING.

It will be all the better for both the discipline and progress of the scholars if they find their teacher more disposed to act than to threaten. A warning of impending danger can be better given with the eye, which has great power to both "threaten and command" than with the voice. We have known a teacher

who was in the constant habit of relying upon the voice not only to teach but to control, and as a result the latter was very incomplete. Noise rebuked in voluble tones one moment, was as loud as ever the next. Another teacher in charge of the same class had merely to look at the class to secure silence as well as attention.

One more point in the deportment of the teacher is to

AVOID ECCENTRIC HABITS.

There is more danger from these with men than with women. Wherever they prevail they tend seriously to weaken the authority and the influence of the teacher, by provoking the amusement of the scholars. We have heard the most hilarious laughter indulged in over the unconscious but ludicrous man-

nerisms and peculiarities of an admirable teacher. We have known others to be lampooned not only for their odd movements, but for their peculiarities of speech. We have seen the habitual grunt of one, the smack of the lips of another, and the strut of a third, used as material for merriment amongst their respective scholars. Teachers should constantly remember that children, from the very vacuity of their minds are particularly sensitive to ludicrous impressions. These are always indulged in at the expense of the person who causes them; for there is much truth in what Addison says, that "laughter is caused by a sense of superiority." The teacher should be, in habits as well as in dress, a pattern to his scholars,—an authority to quote, not an object to point the finger at.

HIGH SCHOOL DEPARTMENT.

THE REVISED PROGRAMME FOR PUBLIC SCHOOL CERTIFICATES.

When it was rumoured that changes were contemplated in the course of studies prescribed for examination for Public School Teachers, hopes were entertained that the adaptation that has been made of the non-professional Second Class examination to the Lower School programme of our High Schools would be carried out in the case of First Class certificates and Upper School work—that the course for Grade C would coincide as far as possible with that for Junior Matriculation, and that for Grades A and B, with that for Senior Matriculation in Toronto University. To some extent these expectations have been realized, and we congratulate both candidates and masters on the simplification of the programme, and the partial harmony that has been thus introduced. But there are still serious and, from a High School point of view, vexatious differences between the courses of study, which only those who are engaged in the effort to put both into operation can fully appreciate. When such differences occur, it is only natural to expect that there

should be some good reason for their existence. To our mind, however, some of them are unnecessary, and some even unjustifiable.

For Grade C, there are five Departments:— I. English Language and Literature. II. History and Geography. III. Mathematics. IV. Elementary Mechanics. V. Physical Science. The English and English Literature, prescribed for this examination and for Junior Matriculation with Honours are the same, except that Johnson's *Life of Addison*, Macaulay's *Life of Johnson*, and some papers from the *Spectator*, are required in addition for First Class certificates. In History and Geography curiously enough and for some, no doubt, philosophical reason, the Geography for First Class, is that for both Pass and Honour Junior Matriculation, while the History is only that for Pass, if we except chapters 15 and 16 of Hallam's *Constitutional History*. The Pure Mathematics are mainly the same, except that Trigonometry is regarded as unnecessary for the Public School Master in this stage of his mental development.

To the additions to the Literature little objection can be taken, though the already over-

worked High School Master will not thank the Department for thus forcing him to form a separate class for one set of his students. Nor can much be said against the chapters from Hallam; for, as a matter of fact, judicious teachers of History, give a synopsis of them to their senior classes. But it seems an uncalled for change, to relegate the Honour History to the course of Grades A and B, and the omission of Trigonometry we regard as a very serious blunder. The additions to the University course have been made apparently to counterbalance the omission of the Languages, if indeed there has been any definite object, which from the tinkered aspect of the programme we more than doubt. The banishment of Trigonometry under any circumstances is at once a reflection on the ability of Public School Masters, and a proof of the incompetency of Mr. Crooks' advisers. Any one acquainted with the subject knows that problems even in Elementary Mechanics are solved far more easily and neatly by the aid of Trigonometry, and teachers of Natural Philosophy, who consult the interests of their pupils, are obliged to take up the subject with such classes. We presume that "the directing mind" of the Central Committee will agree with us, that neatness and elegance of method are as valuable in mixed as they are in Pure Mathematics; and when, to insure these results, it is absolutely necessary for candidates for First Class certificates to devote more attention to Trigonometry, the course pursued by the Department must be admitted to be not merely unnecessary but decidedly injudicious. Students cannot learn proper methods too soon, and it is the duty of the Minister to put no obstacles in the path of the master who wishes to do his duty to his students.

We heartily approve of the synopsis of the topics to be studied, given under the heading "Elementary Mechanics and Physical Science." To the private student this will prove of great value, since no text book is prescribed, provided only the Departmental Examiner do what we may say he has never been known to do as yet, confine himself to the course laid down. A captious critic might object that the enumeration is just a

little too detailed, and that something might have been left to the common sense of the student, but the error is on the right side, and we extend our heartiest congratulations on the success of his labours to the industrious compiler of indexes.

Departments IV. and V. are, unfortunately, not represented in the matriculation course of Toronto University. They have had a place in the Upper School programme of our High Schools, but in most schools the subjects have been either not taught at all or taught spasmodically. The present, comparatively speaking, rationalized programme for First Class will in many schools give life to the teaching of Physical Science, and the advocates of progress will condone the defects we have already pointed out if it give the much-needed impetus to the study of science. The Senate of our national University, which should lead the van in all matters relating to higher education, would do well to follow in this respect the example of the Education Department. It would be more creditable to the University and more advantageous to education to emulate the example of London University than to slavishly imitate the mediævalism of Oxford and Cambridge.

To the English Departments for Grades A and B, not much objection can be taken. We have already pointed out a peculiarity of arrangement in the matter of the English History. The recognition of the claims of Canadian History we heartily approve of. The time has surely come when we may be said to have a history, and whence can we derive more useful lessons than from the constitutional development of our own country?

But it is in the Mathematical Department, as usual, that the eccentricities of genius have run riot. Many of our teachers will regret that the master mind of the Committee has seen fit to indulge his itching for originality at the expense of the harmonious working of our educational institutions. Under the head of Algebra we would notice several of these scintillations; such, for instance, as the omission of continued fractions (necessary to the solution of indeterminate equations) and the theory of numbers, and the substitution there-

for of a branch of the Theory of Equations. Not that there is anything objectionable in the study of the Theory of Equations, but it will cause extra expense to students and additional labour to teachers, besides interfering seriously and unnecessarily with the symmetry of our programme. The student will find himself obliged to procure a copy of Todhunter or some such text-book, and the teacher will be forced to form an additional class if he desire to do this class of work. Under "Plane Geometry" we find "Abridged Notation." True, this is found in Puckle, but it is not required at the University examination for first year students. So far the scheme is an ambitious one, but when we come to "Trigonometry," we find that for some inscrutable reason the spite against this subject is still kept up, and with the addition of "de Moivre's Theorem" and the "description" of the "Vernier and Theodolite" the work prescribed is that for Junior Matriculation. Probably the knowledge required for the "descriptions" is intended to atone for all deficiencies. But what could have induced the author of this part of the scheme to put "Moments of Inertia" under "Dynamics?" This is a branch of Rigid Dynamics and is generally reserved for the senior years at the University. And still worse no text-book has been indicated.

Besides these errors of commission there are others of omission which we cannot, even in a brief criticism, afford to pass over in silence. We had been led to believe that the system of options, allowed for Second Class, would be put into operation for First Class as well; and that Classics and Moderns would have been alternative departments for Grades A and B, as well as those now prescribed. Such a Regulation would, we assert, be indispensable to the homogeneity of the system and only a necessary consequence of existing Regulations referring to Second Class. Public School Inspectors are not now obliged to hold First Class Public School certificates: an Honour Canadian Degree, with some experience in teaching, will qualify them legally and, we may add, in reality, for this responsible position. So that the options which this Regu-

lation allows are forbidden to the ordinary Public School Master by the Revised Programme for First Class certificates—an anomaly which the good sense of the Minister should lead him to correct without delay. It might be urged in this behalf, that if Classics or Moderns provide suitable options for the candidates for a Second Class certificate, still greater benefits would accrue to the advanced student from an extension of the system. But there are still stronger reasons. The necessity for obtaining Grade C makes it obligatory on the teacher to have a competent knowledge of all the subjects taught in the Programme of our most advanced Public Schools, and further mental training can be obtained at least as well from Classics and Moderns as from an extended knowledge of Mathematics, even including ability to describe the Vernier and Theodolite.

What we want in all our schools is teachers of cultured minds, and the influx of university-trained men, which would in many cases follow from the adoption of this principle, and would not fail to prove beneficial to the interests of all classes of schools. And, further, we should in this way have for the High Schools a supply of assistant masters able to give instruction not only in Elementary English and Mathematics, but in Classics and Modern Languages. As matters stand, High School Boards are often at the mercy of inexperienced graduates and under-graduates, who alone, in most cases, possess professional ability and the requisite knowledge of the latter subjects. No teachers can possibly prove more efficient in our High Schools than those trained in our Public Schools. This matter is the more important owing to the very rapid development and increasing importance of the former class of schools.

As the programme is still incomplete, and, notwithstanding the time spent on it, shews evidence of crudity, we trust to see it amended before long in the direction we have indicated.

While we have freely criticised this latest effort of the Department, we of course admit that the Revised Programme is a vast improvement on the old one. Indeed, a revision could hardly be otherwise, but anyone can

see that the one before us is still a thing of shreds and patches—here a little and there a little. The idea entertained by the Department of the mental digestive powers of the Public School Master and of the pabulum suitable for him in the higher stages of his growth, are peculiar, and we sorrowfully admit that a diligent and earnest consideration of the whole subject, has left us as much in the dark as we were before as to the object of the omissions and alterations to which we have directed attention. Some of the changes are, as we have said, admirably adapted to further the interests of sound scholarship, and the general plan is one that meets with our full approval, but we regret to have to add that where its compilers have striven to be original, they have ended in being ridiculous. Perhaps in the meantime it would be as well for the Department to carry out the safe, if unambitious, policy of following public opinion at a respectful distance, rather than of endeavouring to lead it. The former course has manifold advantages, whereas, to render the latter successful, certain qualifications are indispensable on the part of those who make the effort.

Throughout our remarks, we have proceeded on the supposition that the Programme has been framed with a view to its adoption in our High Schools. The recently revised High School programme justifies this supposition, and the fact that there are even now in several of our Schools, far larger classes preparing for First Class certificates than in the Normal School, shows the necessity for such a consideration. If the object of the promoters of the Programme has been, by harassing the High Schools, to force candidates for First Class Certificates to attend the Normal School at Toronto, some good would certainly result: it would give employment to the not over-burdened teachers of these institutions. At the same time we may be permitted to doubt whether the interests of the community would be benefited by such an arrangement. It is well known that had it not been for special and peculiar inducements, many a teacher who has prepared himself for a certificate at the Normal

School, would never have gone there, and it is almost too much to expect that a staff that has failed to discharge, to the satisfaction of students, the duties hitherto devolving on it, will succeed any better if called on to perform work demanding higher attainments and greater ability.

LEGISLATIVE AID TO HIGH SCHOOLS.

When the Provincial Treasury was saved a large expenditure annually and on capital account, by the High Schools assuming the preparation of Second-class Teachers in the non-professional subjects, it was expected by the High School authorities that additional Legislative aid would be given, and that all the burden would not be thrown on the localities in which these schools are situated. The Province at large reaps directly the benefit, for the certificates are Provincial, and it is only natural to suppose that the Province should pay for what it receives. The position of matters is different in the case of Third-class Certificates, for these are valid only in the County where they have been obtained, and the County cannot complain of any expenditure on their behalf. At the very least the Legislative grant to High Schools should have undergone no diminution. But High School authorities have seen with alarm that the grant for 1879 has been decreased in some mysterious way. Hitherto the sum of \$14,600 has been distributed on the results of the Intermediate. This amount is now reduced to \$10,000, and, allowing for the increased grant based on the average attendance, about \$3,000 of the sum apportioned by the Legislature has disappeared apparently into the vasty depths of Departmental expenses. When and where is this sort of thing going to stop? The total amount distributed to the High Schools under the head of "Payment by Results" is now \$20,000, that is, the \$10,000 which the Inspectors manipulate, and \$10,000 for the Upper School attendance. Not to speak of incidentals which, in the only years of which we have any record, amounted to a ver large sum, the High School Inspec-

tors cost the Province about \$9,000 a year, and the annual Intermediate Examination, counting all expenses, will in future amount to at least \$8,000, a total expenditure of not less than \$17,000 to apportion \$20,000! Even allowing for the blessings conferred on our schools by inspection, the cost of distribution is out of all proportion to the sum distributed. An effort is now being made by some Boards to draw attention to this subject, and, as our Local Legislature does not seem to be overwhelmed with business, possibly next session the question of Departmental expenses may attract more attention than it has done. Educational matters are treated from a non-political point of view, and will probably increase in interest as the system of public instruction becomes developed, and the relations of the Minister are better understood. On behalf of our High Schools, the burden of which is becoming very heavy in some localities, we hope that

some remedy will be provided for the state of matters to which we have called attention. If this Intermediate Examination had many praiseworthy features, matters would not be so bad, but with the exception of a few doctrinaires, all engaged in educational work agree that its advantages are far outweighed by its defects.

In connection with the subject of Legislative grants, we must impress upon the Department the propriety of prompt half-yearly remittances. It is productive of serious inconvenience to Boards of Trustees to have to wait for weeks, as has too often been the case since Mr. Crooks' assumption of office. Indeed, delay in the matter of payment seems to be characteristic of the present management of the Education Office. It was only the other day that we noticed in a daily paper the complaint of a Normal School student that the allowances due last July are not yet paid over.

CONTEMPORARY LITERATURE.

THE ART OF READING, by Ernest Legouvé.
Translated from the French, by Edward Roth. Philadelphia: Claxton, Remsen & Co. 1879.

This work has already been noticed in these pages, but its appearance in a new form by another translator justifies further reference to it. The work itself, without professing to be a text-book on the subject, is something more and higher in its specialty. It is, in fact, an admirable review of the æsthetic principles that underlie and govern the art of delivery, and might be properly regarded as a *précis* of the art of reading. The author, an eminent French dramatic writer, has had intimate associations with the French Theatre, and while his interpretations of the art of delivery abound in excellent practical hints and suggestions on the theory and practice of expression, and the science of vocal physiology, both oratorical and dramatic, every page sparkles with illustrative anec-

dotes of the great French orators, actors, statesmen, and authors of his time. The suggestions on the management of the breath, so important in the economy of vocal force, and on the action of the speaking voice, on rhetorical delivery, and the right method of reading poetry, are invaluable. These are amongst the merits of the original work. But Mr. Roth has added a new attraction to his translation, in the biographical notices of nearly a hundred eminent authors, actors, and artists. Amongst these are the names of Voltaire, Ariosto, Bossuet, Racine, Corneille, Moliere, Montaigne, Cousin, Guizot, Rachel, Talma, and Ristori, as well as interesting and instructive notices of the French Academy, the *Ecole Normale Supérieure*, and the *Theatre Français*. The work altogether, as translated by Mr. Roth, with this admirable appendix, cannot fail to delight and instruct the general reader, as well as the student of elocution.

ANALYSIS BY DIAGRAMS, a collection of sentences with Diagrams and Explanations, by W. F. L. Sanders, Bloomington, Ind. Published by the Author, 1879.

During the last few years a great deal of attention has been given to what is called the "Analysis" of sentences. Time was when it was deemed sufficient to be able to separate a sentence into its so-called "logical" subject and predicate, but it is now required to account—as an exercise distinct from parsing—for every word and phrase, and to label it with its supposed function. The object is to enable the learner better to understand the meaning of what he reads, or to compel him to find the meaning of certain passages in order to analyse them, or merely to give the scholar a certain amount of mental training. Perhaps a good deal might be said both for the exercise of "Analysis" and against it; but whatever conclusion we come to about it, it would not be difficult, we imagine, to prove that too much time is given to the subject. It is more than doubtful if dissecting a sentence in this way ever does show its meaning, for a scholar, with a slight knowledge of Latin, for instance, might analyze many a Latin sentence, and yet be ignorant of the meaning of the verb; and on the other hand he might know the meaning fully and yet misplace in his columns the "extensions" and "enlargements," and so, in either case, mislead the examiner. Add to this, that no two writers on the subject agree in their methods or results. Does it not seem strange that a passage, the meaning of which no one can miss, should present topics for discussion, when the whole principle of the "analysis" is based upon the meaning? May we not ask whether it be analysis at all? If two anatomists in their dissection of some animal organism, should reach different results, and if a third, in examining those results, should dissent from the views of both the others, we might safely affirm that the analysis of the organism was a failure, and if all anatomists disagreed thus as to matters of fact, and not merely in their theories, we should be justified in saying that, as yet, no analysis had been reached. Parsing is the true analysis of

a language, and to this in all its departments too much time can hardly be given. Parsing, and stating the relation of each word to other words, may, of course, be extended to phrases and even to sentences, since a phrase or a sentence may be as distinctly a "part of speech" as a single word. If then, each word, each phrase, and each sentence in a passage be parsed and its relation shewn, there is really nothing left for "Analysis" to do. What we really object to, is that "analysis" should be separated from parsing, of which it only forms a part, and that, from its name, it should arrogate to itself a higher importance.

If, then, we consider the so-called analysis of sentences as only a department of parsing, we shall see why we might expect authorities to differ, just as physiologists, who are agreed about the anatomy of an animal, often differ materially in attributing functions to certain organs. The growth of a language is the result of so many various forces, and so often seems, to the superficial glance, a matter of hap-hazard, that if we find phrases with more or less meaning than their individual parts seem to warrant, we must be content, if we can approximately explain their nature, and be indulgent and not too presumptuous in our judgment of those differing from us. It might possibly help to correct a tendency to conceit, and prevent an outbreak of the "*odium grammaticum*" if it could be shewn to be as unreasonable to expect to be able to parse or analyse every expression, as it is to require chemistry to possess no difficulties. Another objection to the separate exercise of "analysis" is that it takes up too much time. A long, intricate sentence is given to the pupil to prepare at home, and if he be unlucky enough to have no "big brother" to show him how it is done, he must work it out alone, or copy his school-mate's exercise, which is easier. His father and mother may be unable to help him, for in their school days, no time was given to "analysis."

To perform the task, a sheet of paper must be ruled into a certain number of compartments, each headed appropriately, "subject," "predicate," "extension," and so on, and

each part of the passage must be deposited in its proper column. Some of these papers have a formidable array of columns, supposed by their respective inventors to supply a suitable receptacle for every possible case that can occur in language.

Many attempts have been made to simplify the subject of "Analysis" for children, and with more or less success. The latest effort in this direction is that of Mr. W. F. Sanders, in his "Analysis by Diagrams." The object is to show at a glance the relation of the parts to each other, instead of packing them away into separate compartments, and wasting so much of the teacher's time in determining whether they are correctly deposited. The device is quite simple. The simple subject and predicate are marked by a continuous heavy line, drawn under both, and are separated from each other by a short, heavy vertical line. Then the "modifiers" are indicated by curved light lines, leading up to the words they modify; the direct object is marked by a curved line drawn over the governing and under the governed word, but our author has no separate place in his system for the "direct object," nor does he distinguish between adjectival and adverbial "modifiers." We do not, however, quarrel with him for this, for we might not find it very easy to distinguish between adjective and adverb, and to give a definition of one that would distinguish it sharply from the other. Those, however, who have time and taste for distinctions of this kind, will here have ample scope for discussion. It might be objected, too, that it is hardly characteristic of "analysis" to leave so many words in the predicate unaccounted for, as we find, for example, in sentence 83, "He commanded the horse to be saddled," where the words "commanded—to be saddled," are all placed together as the grammatical predicate. There is, throughout the work, a large number of examples, gradually increasing in difficulty, worked out, which illustrate the author's system, but many of them would hardly be accepted in our Canadian schools. This circumstance, however, in no way interferes with the merit of the system itself, which we

can readily apply to our own methods of analysis. If confined to the school-room, and to the black-board and slate, we have no doubt, that by means of these diagrams—to which the ingenuity of the teacher could make additions so as to express other relations—the subject might be made intelligible to young children. It might, perhaps, be amusing also to note the effect of one of the more intricate diagrams on an examiner who had never heard of the system.

THE BOY'S OWN ANNUAL, an Illustrated Volume of Pure and Entertaining Reading, edited by James Macaulay, M.A. London: The Religious Tract Society; Toronto: Wm. Warwick.

We have already spoken, in these pages, of the excellent character of this publication, designed by the Editor of *The Leisure Hour* to supply the young with wholesome and entertaining reading. The bound volume, comprising the numbers for the first year of issue, has just been completed, and, having put it to the excellent home-test of introducing it to a family-circle of voracious, youthful readers, with delightful results, we are prepared heartily to endorse its entry into whatever households it may enter. With the annual volume has come the first monthly part of the New Year's issue, an instalment of even greater promise than any which the past volume shews. The Canadian publisher should receive the thanks of every friend of youth in introducing so meritorious a publication into Canadian households. There should be clubs formed for its purchase and circulation in every school in the country.

HARPER'S LATIN DICTIONARY, founded on the translation of Freund's Latin-German Lexicon, edited by E. A. Andrews, LL.D. Revised, enlarged and rewritten, by C. T. Lewis, Ph.D., and Charles Short, LL.D. New York: Harper Brothers; Toronto: Willing & Williamson, 1879.

American scholarship and publishing enterprise has, in this work, received a high and merited compliment—the lexicon having been accepted by the Syndicate of the Clarendon Press at Oxford as the standard au-

thority in Latin lexicography in England. As the work reaches us, just as we go to press, we can only briefly announce, in the present number, the fact of its publication—promising to give some critical notice of the book in our next issue. The Dictionary may

meantime be confidently recommended to students and scholars, as a great store-house of criticism and research, embodying the results of the latest and ripest scholarship in the literature and language of the Latin tongue.

EDITORIAL NOTES.

TOPICS OF THE TIME.

A correspondent in the *New York Nation*, arguing that it is the duty of colleges and universities to impress themselves more strongly on the thought of the country, makes a suggestion which we should like to see acted upon in the Dominion, namely, of extending to the constantly increasing class of young clerks, merchants, teachers, and university graduates, an opportunity to become acquainted with the best thought of the time, the ripest conclusions of science, philosophy, history, literature, and ethics in their broadest scope and influence. The mode of accomplishing this, he suggests, is that which largely prevails in the university towns of Germany, *i.e.* through the medium of scholarly lectures, not popular dilutions, held weekly throughout the winter months by university professors, capable college graduates, and specialists. The work might be taken up, the writer further suggests, by alumni associations, and thus widen the area to be benefited by the experiment. If the suggestion were in Canada acted upon, a beginning could well be made in any of our larger cities, where, if the services of university professors cannot be had, there are plenty of college graduates who could be pressed into service with benefit to themselves and the public. Commenting upon the suggestion, the *Nation* makes the following pertinent remarks, the force of which should be as keenly felt by our own people as by the Americans. "That a great field of usefulness," says the *Nation*, "is open for such a course of lectures as our correspondent proposes hardly admits of a doubt. One

great defect of American life is the severance between the educational period and the practical period. A young man on leaving college has no incentive and no encouragement to continue his education. The pressure is all the other way. He plunges at once into a crowd where every man elbows his neighbour out of the way, and where a suspicion is often forced upon him that the time he spent in getting his education is a greater loss to him than the education itself is a benefit. If the educated classes exert so little influence on public affairs, it is partly because they have not maintained their own place. . . . A man who ceases to study when he leaves college will in a very few years sink to the level of his surroundings, and perhaps even below it; for what little he has learned may be just enough to close his mind to those sources of knowledge that men who are wholly self-educated are so ready to make the most of. It is a truism that no one is entitled to be called a man of education who is not constantly adding to his stores of knowledge and constantly exercising his powers of reflection and reasoning—in other words, that education must continue through life. It is the habit of doing this that makes the public and intellectual life of England so rich and imposing."

WE particularly regret to learn of the final action of the Lindsay School Board in relieving Mr. Dobson, Head Master of the High School, of his duties, and in making him the scapegoat for the shortcomings of the Trustees in their withholding the means

of adequately equipping the school-staff, so that it might not only do justice to the pupils taught in the institution, but enable the latter to hold its own with the High Schools of the neighbouring towns with which it was afterwards unfairly contrasted. The ungenerous, the unjust treatment Mr. Dobson has received at the hands of the Board has little to excuse it, and we can readily understand with what sympathy he is being regarded in having been placed in so false and equivocal a position by those who, on every principle of right and honour, should have stood by him at the present juncture in the school's affairs, rather than have deserted and betrayed him. There are points in this case which call for full and careful consideration, not only in the interest of the incriminated Head Master, but in the interest of education itself and of the profession generally. We propose, therefore, in our next issue, to deal with them, the crowded state of our columns in the present number not allowing of our taking the matter up satisfactorily.

ONE of the men who has come to the front as a school superintendent in the United States is Col. Parker, Superintendent of Schools in Quincy, Massachusetts. He is described as "one of those happy men to whom God has given the grace of enclosing a splendid big boy, and a wise good man in one skin." During the last five years he has revolutionized the method of training children in a small town of 10,000 inhabitants. Some idea of the opinions he acts upon may be gathered from his utterances at the late meeting of the New Hampshire Teachers' Association. He said, "Away with learning the alphabet. Burn the spelling-book, the grammar, and the primary geography. Stop telling little boys to study and keep order. It is an abomination." He believes in word forming. He wants teachers untrammelled by foggy boards of education.

AT the late Social Science Congress at Manchester, a discussion on the introduction

In the meantime it is to be hoped that Mr. Dobson's professional reputation may not unduly suffer by the wanton injury which his late School Board has done him in making him and his assistant the victims first of their own parsimony and neglect, and now of their unmanliness and spite.

THOUGH North Hastings is regarded territorially as somewhat of a back country, it is far from being so in educational matters, owing mainly to the enlightened and energetic action of its Public School Inspector, Mr. Mackintosh. This gentleman, taking a hint from an important discussion on Uniform Promotions at the late Provincial Convention, has issued a circular informing the teachers under him of his purpose to hold an examination, at Madoc, of Fourth and Fifth Class pupils, upon the papers for Entrance Examination to High Schools. His desire in holding the Examination is to afford his teachers a reliable means of testing the relative efficiency of their scholars.

of the Kindergarten system as a panacea for the ills of Public Elementary Schools brought out clearly the opinion that it might, and does become as mechanical as the lessons it seeks to supplant, and that its principles, which are nothing new to our experienced teachers, should be applied throughout the school course.

AN English paper states that "abstemious" and "facetious" are the only words in the English language in which vowels follow each other in their proper order.

THE following problem was submitted in the New England *Journal of Education*:— Suppose, while drilling a class under the usual rule for compound subtraction, you should unwittingly give the following problem, what would you do about it?

	mi.	fur.	rd.	yd.	ft.	in.
From	1	0	0	0	0	0
Take	7	39	5	1	5	

Ans. 1

THE CANADA EDUCATIONAL MONTHLY AND SCHOOL CHRONICLE

NOVEMBER, 1879.

UNIVERSITY QUESTIONS IN ENGLAND.

BY PROFESSOR GOLDWIN SMITH, M.A., TORONTO.

ALL the great university questions are now under consideration in England, in connection with the intellectual and social progress of the nation. With regard to some of them, what is going on there is instructive to us here. The general subject is, perhaps, even more important in our case than in that of England, because, apart from the interests of literature and science, a democratic society stands in special need of the elevating, refining, and moderating influence which is exercised by great intellectual institutions. We have been made sensible by recent occurrences in Canada of the folly of attempting to import into the New World the conservatism, or what is deemed such, of the Old World; but there is another kind of conservatism, consisting in the development of tempering agencies of a rational and permanent kind, which good citizens in a democratic country are specially called upon to cultivate. The improvement of these means of

training national character is perhaps a more hopeful, while to many it is certainly a more congenial, line of reformatory effort than direct conflict with demagogism, faction, and corruption in the political arena.

1. There is one difficult problem with which the reorganizers of universities have to deal in England, but which does not specially concern us here—the adaptation of the mediæval colleges to the requirements of modern society. Oxford and Cambridge were, till the other day, exclusively, and they still are distinctively and substantially, federations of colleges; and all the colleges either were founded in the Middle Ages, or if founded after the Reformation, preserved the mediæval type. All were originally clerical, celibate, and quasi-monastic in their rule of life, as well as in their structure, though their objects were not, like those of the monasteries, prayer and religious contemplation, but prayer and study; All Souls' College at Oxford alone be-

ing intended rather as a chantry than as a literary institution by its founder, whose wish in later times was negatively observed by sinecurism combined with social exclusiveness. Till 1854 the mediæval codes of statutes remained legally in force and continued to cut off the colleges from intellectual progress. But in 1856 the bulk of them were swept away by a Commission of Reform under the authority of Parliament. The British Parliament never formulates principles, but in the University Reform Act it practically established the principle that the inviolability of a founder's will must be confined to his main object, and that all details must be subject to revision by proper authority whenever change of circumstances might render it expedient. Fifty years was the period taken as the limit beyond which no founder's foresight with regard to the best means of giving effect to his main object could be expected to extend; and the commissioners were empowered to deal freely with the details of every foundation which had been in existence for that period. This question is one which the people of the United States may some day be called upon to consider, if they do not wish their noble treasury of endowments to become a museum of donor's whims; at present it seems to be governed not so much by the philosophy of Turgot, the writer of the famous article in the *Encyclopædia*, as by the arguments of Daniel Webster, which are not philosophical, but forensic. A covenant with the dead may be kept in the letter, but if Time, the unceasing innovator, has broken it in the spirit, and there is no legislative power of bringing the spirit and the letter again into agreement with each other, the dead man himself is the most wronged. Scrupulous respect for the sanctity of property is a popular feeling so invaluable that we might well bear much inconven-

ience rather than impair it in the slightest degree; but it would surely not be difficult to make it plain to popular apprehension that there is no robbery in abrogating provisions which a founder himself, supposing him to be a reasonable being, would have abrogated had he lived to see their effect. A wise and thoroughly generous man would deprecate the compulsory observance of the details of his will in a public institution for fifty years, perhaps even for a single year, after his death. Even where munificence is common, as we have every year illustrious proof of its being in the United States, munificence combined with entire freedom from vanity and from the lurking desire of self-perpetuation is comparatively rare. The most noble-hearted founders of intellectual institutions are sometimes personally unacquainted with the essential conditions of success; and bounty, saddled with the enactments of ignorance, may be a dead loss to the unwary recipient. "Never look a gift-horse in the mouth" is a foolish proverb, as many a public museum and other institution can testify. If the Trojans had looked a gift-horse in the mouth, they would have seen something which concerned them deeply.

The Reform Commissioners of 1854, however, failed to deal comprehensively with the question of celibacy. Their hesitation was no unnatural. On the one hand, compulsory celibacy is at variance with the principles of modern society, and fatal to the permanency of the college faculty, the members of which, in fact, have usually taken up teaching only as a mode of employing their time and increasing their income while they were waiting for a college living or other preferment. On the other hand, to abrogate the rule would be to put an end to the social life and break up the whole system of the

college as it now exists. When the subject is mentioned, the thoughts of an Oxford man go back to an ancient dining-hall, a beautiful and noble room, hung round with old portraits of college worthies, in which all the members of the society are assembled at their meal, the fellows on the dais, the students at long tables down the room. Grace is said by the presiding fellow, and one of the scholars or junior members of the foundation, in a Latin form handed down from the Middle Ages. If it is a college festival, the "loving cup" goes round. Dinner over, the students retire to their own rooms, and there often make up parties of their own. The fellows withdraw to their "common room," where, while the wine is passed round after the fashion of the old country, the talk often runs on the affairs of the college and the characters, doings, and prospects of its junior members. The strength of corporate feeling and the attachment to the old house fostered by this system are valuable; still more valuable are the close personal relations and constant intercourse between tutor and pupil which it encourages, and upon which an old Oxford or Cambridge tutor often looks back with no common pleasure. The social bond between the undergraduate members of the college is also favourable to the formation of character and to friendship: perhaps it is partly the want of such a bond in the American universities that leads students to seek a substitute in the "secret societies." If the fellows marry, they must live separately with their families, and for the most part out of college, for the arrangement of the monastic building repels married life. There will then be an end of the college as a society; as a barrack it may remain; but as a barrack it will probably be a nuisance, for, in England at least, it would be scarcely possible to maintain discipline, or

even manners, among a large body of students rooming in the same building without the presence of the seniors. Still the quality of the teaching is the first object, and it can be secured only by the permanent devotion of the fellows, or such of them as constitute the college faculty, to their calling, with which the rule of celibacy fatally interferes. If the present commissioners can devise a mode of reconciling the improvement of the teaching with the preservation of the social life of a college, their ingenuity will deserve a crown.

2. The hideous system of religious tests imposed in Stuart times to keep the universities under the dominion of the State church has, after a protracted struggle, been removed: at least it has ceased to be compulsory; though we believe it is still legally open to the graduating student, if he thinks fit and has the clerical profession in view, to bind his conscience to formularies comprising several hundred propositions in theology, many of them controverted, before he has had time to form any well-grounded opinion. The university of Laud and Sheldon is now open to "Jews, Turks, infidels, and heretics," all of whom have taken advantage of the concessions, for the heir of the late Khedive was a student at Oxford. The major part of the fellowships has also been thrown open to laymen. But the remainder of the fellowships, amounting in some colleges to a moiety of the whole number, and all the headships except two or three remain tenable only by clergymen of the Church of England. In the Middle Ages everything literary was clerical; so that when a mediæval founder enjoined his fellows to take orders at a certain standing, he in no way prejudiced the literary objects of his foundation. But at the Reformation, literature, and science with it, passed in the main to the laity: the

functions of the clergy were narrowed to the pastoral office and theological study; and institutions of which all the officers were clergymen underwent a corresponding contraction of scope and character, besides being enslaved politically to the reactionary party with which the Established Church was identified. Clerical restrictions on elections to headships and fellowships, especially those on headships, now act as powerful guarantees for the ascendancy of the Church of England in the universities. This fortress of Establishmentarianism is closely besieged by the Liberal forces, and in the end will no doubt fall. It is being daily rendered less tenable by the manifest progress of the new opinions among the academical clergy. The presidency of a layman, even if he were neutral in theological questions, could hardly be so subversive of religion as is that of a clergyman who, as everybody believes, would at once doff his black coat and white tie if he could do so without at the same time doffing his academical dignity with an income of \$10,000 a year.

Anglican or clerical ascendancy is one question; religious education is another, though the two are naturally confounded in a country accustomed to identify religion with a State church. In a period of religious division, such as that through which we are passing, the happiest solution of the problem would seem to be a secular university open to all, with colleges each of which, while availing itself of the professoriate, libraries, and apparatus of the university, and sending its students into the common examinations, might carry on its special system of religious instruction and moral discipline within its own walls. But it would be impracticable now to appropriate the colleges of Oxford and Cambridge to different churches, and on this continent the practice of local separation has gone so far that a for-

mation of colleges on the Oxford and Cambridge plan appears beyond our reach. The progress of religious thought, if it continues in the present direction and at the present rate, will soon change the aspect of this question. In the meantime, one who has been a student and tutor in a religious college at Oxford, and who is now connected with a secular university in America, may be permitted to avow his conviction that, whatever may be the case with children, in those who are of an age to go to college spontaneity is the essence of religion; that compulsion breeds antipathy at least as often as it does the reverse; and that morally as well as intellectually the most industrious college is the best.

3. The curriculum both at Oxford and Cambridge, till about five-and-twenty years ago, was confined to classics and mathematics; and the study of classics at Cambridge was purely philological, while at Oxford it included ancient philosophy, with Aristotle for a text-book, and ancient history. Now, physical science, history, and jurisprudence are included as optional subjects for the final examinations, and admitted to equal honours with the old studies, though classics and mathematics are still retained as the general basis, and preserve their ascendancy to a great extent. Physical science, though it has immense attractions and will probably in time become the basis of education, does not lend itself very easily to the purposes of a university curriculum: lectures in it may be attended and notes of the lectures may be taken, but the real benefit of the study as a mental discipline cannot be reaped without going through a course of actual investigation and experiment which can scarcely be compressed into three years, even if the other studies are set aside. The system is in a state of transition and

uncertainty, which will not be terminated till we have arrived at a more definite idea than we now possess of the object and functions of universities. In the Middle Ages a university was a place both of liberal and professional education, as well as a place of general study. The liberal education was preliminary and designated by arts, the professional education was final and designated by the faculties, the whole course, liberal and professional, extending over some fourteen years. In England the professional studies of law and medicine have now migrated from the universities to London. Is it desirable and possible that they, or the more scientific parts of them should be recalled to their ancient home? Ought the university to be content with giving the student a liberal education, or ought it to put him in the way of winning his bread and butter? Behind these questions there is coming up one of a more fundamental kind which is likely to press upon us more and more. What is the benefit derived from residence at a university by the general mass of young men who have no particular taste for learning or science, and are not destined to lead learned or scientific lives? Do they, on the average, get anything in the way of useful culture or preparation for active life which repays them for the sacrifice of time, the expense, and the moral risk? Would not their minds be just as well trained by the study of a profession or by business? Would they not pick up from books and journals read at home nearly as much of liberal culture as they carry away from the university? In the Middle Ages knowledge could be obtained only in the lecture-room of the professor; now it comes to you through the press wherever you are: you must still attend the demonstrator, but the lecturer might almost as well be attended by a short-hand

writer as by the class. Perhaps the answer may somewhat vary with the circumstances of different countries. In England the number is very large of young men, the sons of the territorial aristocracy and the destined rulers of the community, who do not go into professions, and who, if they were not learning something and undergoing some sort of discipline at the university, would be learning nothing and undergoing no discipline at all. Small enough, no doubt, is the benefit that many of them receive; still it is better than nothing, and by giving their sons a long course of education men of wealth and leisure pay the highest tribute in their power to the country. It is said that a young nobleman at Oxford was heard to call out from his window, "If any fellow is going anywhere to do anything, I'll go with him." In his father's halls his lordly listlessness would have been the same, and at Oxford there were, at all events, one or two places to which university discipline forbade him to go. These remarks may be extended to such young heirs of wealth as there are in the United States, and in one respect with greater emphasis. The young English nobleman or squire has, by the institutions of the country, enough political or administrative work cut out for him to prevent his sinking, as a rule, to the lowest depth of Sybaritism; but the young American millionaire, take away his college culture and the tastes that it may awaken, has no such salt provided to keep his mind and character from rotting.

It may be observed, in passing, that the effects of the old classical culture in England are not to be measured by the number and writings of the professional scholars. In these Germany has been far ahead of England, though, whoever may have been the greatest paleographer or antiquarian, it would be hard to name a greater

"Grecian" than Porson. But it would scarcely be a paradox to say that the reason why Englishmen have edited and commented upon the classics less is that they have read them more. If perfect familiarity with the classics and a thoroughly classical taste are enough to constitute a scholar, much of the best scholarship of England would be found among amateurs. Many are the instances of statesmen and proconsuls who through life have kept up their classical studies in the intervals of business, and have turned to them as an intellectual haven in their old age; while the political sentiment of the ruling class has had in it, for the last three centuries, a strong ingredient drawn from republican antiquity.

4. It became clear at least thirty years ago that a measure of university extension would be needed, especially in the interest of a large class in the north of England, generated by the marvellous growth of commerce, which desired a high education, but shrank not only from the expense of Oxford and Cambridge and the sacrifice of time, but still more from the contagion of aristocratic extravagance and the complete interruption of all business connections and ideas. A plan was framed at Oxford by those who recognized this exigency, but at the same time wished to preserve the great historic centres, the purity of the national system, and the standard of national degrees. It was proposed to affiliate local colleges, of which there were several already in existence, and to permit the junior course to be gone through and the lower degree taken at the local college, the university prescribing the curriculum and holding the examinations; while those who desired to go through the senior course and to take the higher degree would be required to come into residence at the university. It was thought that the junior course and

degree would meet the wants of men destined for business, and that a local college might provide an adequate staff of teachers and apparatus for that purpose. The plan was tabled at the time, richly endowed bodies being rather slow in their movements; but it has now been called up again, and is likely to be adopted. In the meantime, however, circumstances have changed. Owens College, Manchester, which would once have accepted affiliation, has grown to what it deems the dimensions of a university. It has claimed university powers, and, after a long controversy and much hesitation on the part of the government, it has carried its point. The resistance, which found sympathy even among the trustees of Owens College, and the hesitation of the government, marked the aversion of the friends of high education in England to the multiplication of universities which they know will be followed by a lowering of the standard.

It remains to be seen whether England, having once got upon the dangerous slope, will be able to prevent herself from sliding into that "one-horse" university system which is the bane alike of Canada and the United States, and, like some other things among us—the state of the municipal franchise, for instance—seems to be at once deplorable and past remedy, since the weaker a college is the more certain it is to cling to its isolation. If the English need a warning example, several of our one-horse universities will furnish it to them with a vengeance. Nothing can be more patent or more flagrant than the inadequacy of some of these institutions to the functions which they pretend to discharge. A primary school convicted of anything like a proportionate deficiency of teachers, books, and apparatus would be at once closed. A small university must of necessity be

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a bad university.] It must of necessity be narrow intellectually and socially: it cannot provide itself with a proper staff of professors, or with a good library, or with the collections and teaching apparatus which science now demands. All this is undeniable, but it will not induce weak colleges to give up their university powers.

In another way the one-horse university system is likely to do mischief. An untrammelled facility of graduation, with the present tendencies of American society, is pretty sure to produce a supply of graduates in excess of the demand. In an early stage of civilization the difficulty is in inducing men to take to intellectual callings; but now, and especially on this continent, the difficulty is the other way. Founders of new colleges hardly consider what is to be done with all the alumni whom they will send forth. The intellectual callings are becoming overstocked, and it is cruel kindness to multiply the number of cultivated and sensitive natures condemned to destitution.

Oxford and Cambridge are so richly dowered with wealth, beauty, and history, and have such a hold on the heart of the nation, that if they are true to themselves they will probably keep their place. Possibly they may even re-absorb the University of London. That institution was called into existence only by the fatal bigotry which, in the supposed interest of a privileged church, excluded half the nation from the national universities. It has no staff of teachers, and is, properly speaking, not a university but a central examining board, conferring degrees on all comers without reference to their place of education or to the course which they have gone through, otherwise than as it is indicated by the examination. About fifty years ago a new university was founded, on the model of an Oxford College, at Durham, out of the sur-

plus revenues of the cathedral. This was an unseasonable revival of a project of Cromwell, formed at a time when the communication between the north and south of England was less easy than at present. It has failed, and the university is fain to give substance to its spectral existence by an alliance with a medical school at Newcastle.

5. Another subject of discussion, and rather vehement discussion, is the system of examinations. At Oxford and Cambridge the examinations for students ambitious of honours are competitive, and more highly so at Cambridge, where the candidates are placed in order of merit, than at Oxford, where they are ranked in four classes and placed alphabetically in each class. The intensity of competition is greatly increased by such prizes as the fellowships, which are now bestowed on graduates by examination, and are of the average value of \$1000 a year. Various objections are now brought against the system. It is said that the examination test is imperfect, that students are apt to be overstrained and exhausted by the effort, above all that the proper objects of study are supplanted by ambition or pecuniary motives, and that the genuine student is prevented from following his natural bent, and forced to direct his reading to the impending examination. The practical question must be whether the good or the evil preponderates, and in England, perhaps, the weight in the scale of good may be increased by considerations which have no place in America. England is an aristocratic country, and these university honours and prizes, especially the fellowships, keep a door open for plebeian merit. On the other hand, there are aristocratic students in the English universities out of whom it is impossible to get any work without the spur. The life of Lord Althorp is in every way

interesting as a history of an upright public man; and it contains a remarkable proof of the usefulness in some cases of competitive examination. Evidently, as Lord Althorp said himself, he would have sunk into a mere sportsman, absorbed in hunting or shooting, and have been lost to the country, had not his sense of his powers been awakened and his ambition kindled by a college competition. Against mere test examinations, without competition, such as are usual in American colleges, nothing can well be said. No other method of ascertaining proficiency has been devised, and it will hardly be pretended that Newton or Faraday would have been turned from his natural bent by having to pass a college examination in mathematics or chemistry. No doubt love of the study and the duty of self-culture are much to be preferred as motives to compulsion or ambition. But to trust to these alone would be to consign a large proportion of our present students to idleness and vice. If examinations are to be abolished, the students must be picked. Imperfect, of course, any examination test is; but at Oxford and Cambridge the result generally accords with the previous reputation of the students, so that the injustice can hardly be very great. A university, of course, is concerned only with the results of literary and scientific education; it does not pretend either to impart or to test any practical qualities, except industry and perseverance, and to quarrel with the examination system for not selecting men of action is to quarrel with a circle for not being a square. That in any examination which is tolerably managed mere "cram"—that is, facts got up by rote—can compete with real knowledge few who have had experience in examinations will assert. We should like to see the man who, being ignorant of mathematics, could be crammed so as

to solve mathematical problems, or who, being ignorant of Latin, could be crammed so as to write the language correctly. But, as Mr. Lowe said, "Cram is what I know and you don't."

The student's health, no doubt, is sometimes injured by overstrain in preparing for examinations: it is probably injured at least ten times as often by the indulgences to which idleness is prone. But there is no need for overstraining. Even under the competitive system regular work for a moderate number of hours each day will do all that can possibly be done. The mind is not a pitcher; it can take in knowledge only by an active effort, of which it becomes incapable when it is jaded. In the examination itself, to produce your knowledge you must be fresh and vigorous; and the candidate who wishes to succeed had better reduce than increase the number of his hours of work as the time for the ordeal draws near. Bad habits will tell on the student as well as on other men. If your pupil breaks down, inquire whether he is over-reading himself; but inquire also how many cigars he smokes, and whether he works late at night. Rise early, reward your own virtue in so doing with a cup of tea or coffee, if Dr. Dio Lewis is not looking on; get a good deal of your work done before breakfast, when the understanding, though not the fancy, is at its best; spend the evening in recreation, and sleep well. Then if you break down, you may justly charge it to the account of examination or Evolution.

The proposal to abolish examinations presents itself in rather ominous conjunction with an almost avowed desire on the part of the holders of academical endowments to rid them of educational duty, indeed of fixed duty of every kind, and to turn the headships and fellowships into places of literary and scientific leisure. Universities, it is said, ought to be

dedicated not to education, but to research. Scepticism still prevails as to the possibility of selecting "researchers," or of securing their activity when they have been selected; and it is not likely to be allayed by the disdainful tone in which the spokesmen of the movement denounce the idea of exacting anything of the researcher beyond his existence. Experience is against their policy. Neither the headships of colleges, which have been hitherto almost sinecures, nor the deaneries and canonries of cathedrals, which have been entirely so, have ever produced anything, even in the theological line, at all proportionate to their revenues, or which could even justify their existence. But those who do not wish to cast out education, or to bring in sinecurism, do wish to provide for research. The professoriate both at Oxford and Cambridge will certainly be enlarged; the incomes of professors will be increased, and leisure enough for private research will be secured to the professors. A certain number of fellowships will probably be left without educational duties, and the headships—the value of which ranges from \$5,000 to \$20,000 a year—saving the clerical restrictions, are likely to remain much as they are at present. The universities will also be provided with funds for the assistance of special researches, which most people deem a more prudent investment than the endowment of researchers. Already the university presses bring out books, such as the Icelandic Dictionary, which require a large preliminary outlay, and would hardly be taken up as a commercial speculation by ordinary publishers. Ample provision will thus be made for the objects which, in America, the Johns Hopkins University is specially intended to promote. But universities, if they do their work well, will beget research beyond their own precincts. They will make the profes-

sions more scientific, and thus multiply Austins, John Hunters, and Maines. They will cause many a private income to be employed like that of Cavendish or Fynes Clinton. Mr. Morgan, of Rochester, and Mr. Lea, of Philadelphia, are just as much devoted to research as they would be if they were living within college walls. The intellectual and scientific world has grown far wider than it was when everything was concentrated in the universities.

6. In throwing open the fellowships and scholarships to examination, while many obsolete preferences in elections were unhesitatingly removed, hesitation was felt in abolishing the preference to poverty. It was done, however, and in the interests of poverty itself, as is attested by the most competent authorities, who assure us that more poor youths make their way at Oxford under the new than under the old system. Need is indefinite, and the person most in need is apt to be the most importunate or the best befriended. It is a cruel benevolence which tempts a poor and virtuous youth, who would be happy as he is, into an ambitious line of life without satisfactory proof of his being able to maintain himself at the new level; and the only satisfactory proof is his success in open competition. If anything in the eleemosynary way is to be done, let it be by means of a fund secretly administered by the college authorities for the assistance of deserving students in their need. The point is mentioned because it seems to have been mooted in the United States.

7. Union of manual labour with study, the generous vision of the founder of Cornell, has never been proposed in England, though in the little universities of Scotland, it is believed, there are still students who work on the paternal farm in the vacation. The experiment appears to have failed. Study and manual labour

draw on the same fund of nervous energy, which is not sufficient to feed both; and a man exhausted by study requires relaxation, not toil. Some people seem to fancy that the labour of the hands alone is worthy of the name, and that there is something despicable in working with the brain; they might as well despise an engraving tool for not being a ploughshare. That university graduates will go back to the farm seems, under the present conditions of society, to be a dream.

8. Lastly, there is co-education. The University of London has admitted women, not without strong opposition by a part of its governing body; but the University of London, as has been already said, is nothing but an examining board. Oxford and Cambridge have undertaken the examination of women who wish to become teachers; they have always allowed every one, whether students or not, and without distinction of sex, to attend the public lectures of professors; but they still hold out against the admission of female students, though Cambridge is closely besieged by an outpost of the invader, Girton College, planted at its very gates. Every engine is plied, appeals are made not to reason only, but to sentiment, and enforced by a gentle intimidation, to which those who cherish a reputation for liberalism especially are apt to yield. Clearly enough not only this special question, but the more general and far graver question as to the future relations between the sexes, is likely to be settled by other influences than that of argument. Nature will break a settlement which reason has not dictated; but the experiment may cost us dear: we may find that it is possible to unmake women, though it is not possible to make men.

That the education of women ought to be high we are all agreed. But unless the functions of the two sexes are the same, high is not necessarily male.

If the function of men, as a sex, is labour, that of women maternity and the management of a household (and it is difficult to see how the species can be preserved under any other arrangement), the presumption is in favour of some corresponding difference in final education, and there can be no illiberality in assigning to each sex that which it needs, not that which it does not need. If the two are destined by nature to be complements of each other, to train them up as competitors is not large-mindedness but folly. The wealth of marriage will certainly not be increased by the change. No man or woman can master the whole circle of knowledge and accomplishments; the more diverse, therefore, the acquirements of the two partners, the richer the union will be. Thoroughgoing radicals spurn the idea that the interest of wedlock is to be allowed to regulate these questions; but they will find themselves in collision with very deeply-rooted prejudice. Physiological questions we leave to physiologists, who are certainly not unanimous in pronouncing that the full male burden of intellectual labour can be safely imposed on the future wife and mother. The danger would of course be greater under the competitive system of examination at Oxford and Cambridge than under the system which prevails in the United States. But it is hardly conceivable that the feelings of young men and young women towards each other in England should undergo such a change as to admit of their competing against each other. Nor are there many who would wish to awaken in the breasts of women the feelings which rivalry awakens in those of men, and which, it must be allowed, are a drawback on the good effect of the prize. No cast-iron rule need be laid down: our system must be framed not for Mrs. Somerville or Miss Martineau, but for women as a sex.

✓ Supposing, however, that the final education of men and women is to be the same, it is a separate question whether they can receive it in the same universities. We cannot draw an affirmative conclusion from an experiment made with a few young women probably of an exceptional character, and certainly under the restraints of a novel and delicate position; even granting such experiments to have been successful, which in the case of the female students of Zurich appears more than doubtful. We have to ask ourselves whether the young women of the wealthier class generally can be safely mingled in a university with the young men of the same class. Let any mother, provided she is not an extreme radical, decide. In America there are excellent colleges for women, with full university powers, though we understand that those among them which at the outset professed and attempted to give a complete male education have found it necessary to make concessions to sex, as all universities would if the number of females in them became large. There is, in some quarters, a manifest desire to burst open doors merely because they are closed; but gratitude is due those who, like the liberal though stalwart President of Harvard, decline, in mere deference to such a desire, to jeopardize institutions which are doing good work in their own way.

9. Perhaps the list even of serious subjects would hardly be complete if we left out athleticism, the extravagant development of which in the English universities fills with apprehension many who are perfectly aware of the connection between a sound body and a sound mind. Success in athletics, notably in rowing, has now become an object competing nearly on a par with the proper objects of a university, and students plead training as a ground for the intermission of their studies, which, in fact, are incompatible with the

animalism of an athlete. This may be partly the Nemesis of previous neglect of physique, though the young gentry of England can hardly be accused of having habitually sacrificed the body to the mind; but it is difficult to believe that the abnormal and temporary development of muscle can really be conducive, as regular exercise and exhilarating pastimes are, to the normal and permanent health required to sustain intellectual labour in after-life. Whether it is not the reverse of conducive to such health is a question not to be decided by statistics confined to the cases of celebrated boating crews, which are sure to have been made up of picked men. The main source, however, of the mania, for it is nothing less, is, in England, the *ennui* of a wealthy and unemployed class; in the United States, imitation of England. University authorities have too often made themselves responsible for the growth of the tendency by the homage they have suffered themselves to pay to it. If their universities are gymnasia, their position is hardly a sound one: raw beef-steaks and the services of a trainer can be had without the expense and risk of going to college.

Horse-racing, the great pastime of the aristocracy in England, has become a sink of gambling and worse things. Rowing, pedestrianism, and other sports are being rapidly sucked into the same vortex. All alike are gathering a train of "professionals," who turn a liberal pastime into a disreputable trade. These men, mere brutes many of them, are exalted into idols, their coarse society is courted, their stolid sayings are repeated, the most ridiculous details of their bodily condition, the tidings of their catarrhs and boils, are mingled in cablegrams with the most momentous items of intelligence. They are compared to the athletes of Greece, and their matches to the Grecian games.

It is idle to think that in the industrial communities of modern times we can revive the habits of the ancient Greeks, bodies of slave-owners dividing the leisure secured to them by the labour of their slaves between the gymnasium and war. Life now is too busy and too serious. The ideal of "noble boys at play," which the Greeks are said to have realized, may be poetic, but it cannot be ours. With the Greeks, however, athleticism was not mere play; it had in it an element of usefulness which preserved it from being childish; it was a preparation for war when war was the principal business of life, and when battles were decided by personal prowess, not by long-range rifles. Rowing a shell or walking against time is almost as little connected with anything useful as trundling a hoop.

Moreover, the ancients did not confound muscular strength with intellect, or put them on a par. Hercules is represented with an unintellectual head; and there are representations of gladiators at Rome which are evidently caricatures of brute strength by artists who despised it.

At Oxford, while athletics flourished in superabundant measure, the volunteer rifle corps of the university languished and was with difficulty kept on foot. Yet here was something really Greek; here was the modern counterpart of the military duty performed to the country by every citizen of an ancient republic. At Cornell University and other institutions enjoying Federal endowments, the American Legislature has introduced the requirement of military drill and instruction. It is to be hoped that the law will take effect. Drill and rifle practice are almost as good a recreation as any

game; they are not exhausting like athletics; they are likely to give the too-bookish student just the bracing and the tone he needs. If they are not so necessary to the modern citizen as warlike training was to the Greek, they are necessary, though in a different way. War is not likely to afflict this continent since slavery is dead and Jingoism will probably not be long-lived. But war is not the only danger. The labour riots which occurred three years ago at Pittsburg and elsewhere revealed, by the lurid light of incendiary fires, the peril in which a society unarmed and without habits of military co-operation always stands. America is annually receiving from Europe masses of immigrants more or less malcontent and unaccustomed to any government but one of force; often she receives men whose trade is industrial conspiracy, and who have been ring-leaders in the bitter conflict between labour and capital in the Old World. The army of the United States is very small, and there appears to be a disposition to reduce it still further, on the ground that it may be dangerous to liberty, though it has never swerved or shown the slightest disposition to swerve from its civil duty, even under the exciting and demoralizing influence of a great civil war. A practical recognition by American youth of the military duty of all citizens in extremity is the only possible way of guarding liberty against anarchy, relieving society of its fears, saving honest industry itself from ruin, and making conspirators feel that while every one has full liberty of speech, however wild his opinions may be, those who proceed to lay violent hands on American civilization will do it at their peril.—*Princeton Review.*

THE HISTORY OF EDUCATION.

MUCH of the attractiveness which unquestionably attaches to the study of the history of education is, no doubt, due to the fact that it is, in England at all events, a comparatively new subject. In pursuing such a course we are journeying almost along untrodden ways. It would be too much, perhaps, to say that the soil is actually virgin, so far as our own country is concerned, for the works of several distinguished Englishmen prove the contrary. But this history of education is a subject which needs revival almost as much as education itself did at the period of the Revival of Learning in Europe, when the study of the special branch required must begin. The Germans and the French (especially the former) have outstripped us in this matter. The *Pädagogik* of the one and the *Pédagogie* of the other have been formulated and methodised when we are only just beginning to think of setting our materials in order. That is mainly what we have to do. There are ample materials to hand; what is required is to get them into shape. And the very first thing to be done, seeing that the ways are thus untrodden ways, is to draw up an itinerarium, just as we should do if we were about to venture forth into a new country. By this is meant something more than a mere syllabus, which is, of course, a rudimental necessity. A synopsis, as much in detail as possible, of the whole ground to be covered will certainly tend to clearness of conception and symmetry in arrangement. It will be the scaffolding for the future building, the outline to be by-and-by

filled in with lights and shadows, and tinted with the proper colours.

Such a synoptical view is presented in the admirable article on "Education," by Mr. Oscar Browning, in the ninth edition of the "Encyclopædia Britannica;" and at much greater length—but still as a sketch in outline—in that admirable little French work, the "Histoire de la Pédagogie," by M. Jules Paroz. To a combination of these sketches, with side-references to the works mentioned therein, the present synopsis will be largely indebted for the facts it seeks to group together. We may pass over the ecclesiastical schools of the Jews and the Egyptians, not so much because they lie outside the geographical limits of our subject, or beyond its chronological boundaries, each of which considerations may be liberally dealt with in a comprehensive survey of the entire subject, but because the Jews* had little effect on the progress of science, and also because ample justice can be done to Egypt when one comes to consider the transplantation of Greek learning to Alexandria. The Greeks first developed a science of education distinct from theological training; and it is, of course, this secular phase of the subject with which the student of pedagogics is principally concerned. They divided their subjects of study into music and gymnastics, attaching special meanings to each of these terms. Plato is the author of the first systematic treatise on education. The sub-

* In Paroz's "Histoire de la Pédagogie" are given the chief texts from Proverbs and Ecclesiastes bearing on Hebrew education.

ject was naturally and necessarily connected with the unfoldment of his ideal Republic; and it is in the discourse bearing that name that we find the fullest account of Plato's views on this topic; but it is also treated in the "Laws"; and the two doctrines require some little manipulation to make them harmonize. Plato's main position is that the beautiful and the true are coincident, and that the mind best fitted to grapple with the difficult problems of practical life is that which has been formed by the poetic process of the contemplation of art. Music—meaning by that term all those studies over which the muses presided—was best fitted to excite the feeling of tenderness in the minds of the young; while gymnastic exercises would strengthen their characters and bodies for the contests of life. Such a combination of the moral, intellectual and physical training, Plato calculated, would issue in the formation of the perfect character. He proposed to make instruction entirely a state affair. Aristotle, too, whose view of education is found in his treatise on Politics, also views man as part of the state. To live outside the state, he said, would require a being greater or less than man. Considering the feud that was waged between the opposed systems of Platonism and Aristotelianism at the time of the revival of learning, a detailed study of those two systems would be absolutely necessary in order to guarantee an exhaustive view of the history of education. Attention must also be given to the practical work done by Pythagoras and by the Sophists—those earliest schoolmasters—respectively.

The aim of the whole educational system of the Romans was eminently practical. It was only on the eve of the great Hannibalic War that the Roman first had anything like a literary education; and even so early as that Greece began to take Rome cap-

tive, for the Roman tutors, as well as the Roman writers, were frequently Greek slaves. There is something surely characteristic as to the genius of the two nations when we find the *scholæ* of the Greeks become the *ludi* of the Romans. Under the Empire education was systematised; and Horace has left us an amusing picture of his experiences as to the tender mercies of the "Plagiosus Orbilius." One great authority on the subject of Roman education is Quintilian. He treats the subject, so to say, parenthetically, as, in fact, Plato and Aristotle had done before him. His work is on Oratory; but he introduces incidentally a complete sketch of a theoretical education. Perhaps Quintilian has been as much drawn upon by later theorists in education as old Robert Burton's "Anatomy of Melancholy" was by miscellaneous writers, and sometimes with as slender acknowledgment of the source. John Milton said that the oratorical training prescribed by Quintilian was competent to do even more than it proposed, and to fit a man not only for the rostrum of the rhetorician, but to make him perform, justly, wisely, and magnanimously, all the offices, both public and private, of peace and war.

Leaving behind us for the moment these old-world ideas on the subject of education, and approaching the line of delimitation laid down by the University of Cambridge for the commencement of the subject proper, we find, first of all, the Christians down to the fifth century educated in the Pagan schools. It was at Alexandria that special provision was made for Christian education under the auspices of Clement and of Origen respectively. The later Latin fathers, Tertullian, Cyprian, and Jerome, would have the line rigidly drawn between the two systems; and Augustine, when the prayers of Monica at last prevailed,*

condemned with some bitterness the system to which he owed so much of his influence. In the Middle Ages the contrast was between monasticism on the one side and chivalry on the other. The education was that of the cloister or of the castle. Its object was to form the hermit or the knight. The respect in which the female sex was held largely differentiated the two views. On the one side woman was regarded from the point of view of St. Antony; on the other from that assumed by the Troubadour. Though leavened, of course, with a strong element of ecclesiasticism, the educational work that was done within the walls of the monasteries is not to be despised. Monte Cassino,* Fulda, and Tours did good service in their day and generation; but they certainly did not succeed in combining the *dulce* with the *utile*. The ascetic idea was carried into education, and study was not made a pleasure, or Quintilian's idea of tenderness in discipline carried out. The course of seven sciences or liberal arts divided into the *trivium* (grammar, dialectics, and rhetoric), and the *quadrivium* (arithmetic, geometry, astronomy, and music) was thus described in two doggerel hexameters:—

Gram., loquitur; dia., vera docet; rhet.,
verba colorat;

Mus., canit; ar., numerat; geo., ponderat;
ast., colit astra.

One of the earliest expositions of this system was that of Martianus Capella, who, in 470, published his *Satyra* in nine books, the first two being devoted to what he called the marriage of Philology and Mercury, and then a separate book to each item on the trivium and quadrivium respectively. Cassiodorus, about the year 500, wrote the treatise, *De Septem Disciplinis*; and Cælio Iuliano compiled a

metrical astronomy in hexameters, much after the fashion of the *Propria quæ Maribus* and *Asin Præsenti*, which school-boys had to learn in the days of the old Eton Latin grammar. Over against the seven articles of the monastic quadrivium stood the seven knightly accomplishments. These were to ride, to swim, to shoot with the bow, to box, to hawk, to play chess, and to make verses, sometimes in Latin, oftener in Italian or Provençal. It would scarcely be possible to imagine a sharper contrast than between the two rival *trivia* and *quadrivia*, summarising, as they did, two utterly opposed types of character and training.

There were exceptions, of course, even in the dark ages, to the prevailing gloom. It was not all dark. There were, for instance, the schools of Charles the Great, concerning which Mr. Mullinger has written an interesting work, taking those schools as typical of the revival of education in the ninth century. Less than a century after Charlemagne, King Alfred restored letters and schools in England, when they had been almost extinguished by the Danish invasion. Yet his efforts were as unfruitful after his death as Charlemagne's had been in France: and the darkness deepened into the Egyptian gloom of the tenth century, when, it has been significantly said, no heresies appeared. Even in this century, however, the darkest of Christian literature, the Arabs had flourishing schools of learning from Bagdad to Cordova. Of their seventeen universities, Cordova was the oldest, and had a library of 600,000 volumes. An elementary school was attached to every mosque, in which reading and writing were taught, and the pupils learned to recite poems by heart. The rise of the scholastic philosophy and of troubadour poetry, the institution of universities, and the return to a profound study of the

* See Mullinger's "Schools of Charles the Great,"

Greek and Latin classics were the literary steps during and after the eleventh century by which the revival of learning was reached. From the twelfth and thirteenth centuries—the era of the schoolmen—date twenty universities, including those of Paris, Montpellier, Oxford, Cambridge, Bologna, Padua, Rome, Salamanca, and Lisbon. Many of them were special as to their faculties; Bologna being devoted to law, and numbering 12,000 students at the end of the twelfth century; Salerno made medicine its peculiar province, and Paris was thronged with students who were anxious to probe the border-line on which theology and philosophy met.

Certainly the most interesting of those communities which preceded the Renaissance was that of the Brethren of the Common Life, established at Deventer, in the Northern Netherlands, with affiliated institutions at many other places. Though the rule was to all intents and purposes monastic, yet no vows were taken; and while the instruction given was originally intended to be purely religious, yet the rigorous repudiation of secular learning was afterwards relaxed, and the result of the combined regimen was the formation of such a character as Thomas á Kempis, author of the "Imitatio Christi," whose real name was Thomas Hammerlein, and who entered as a student at Deventer* in the closing years of the fourteenth century. All these types of education, however, disappeared before the Renaissance and the Reformation. It is necessary to keep apart these two distinct events, to which M. Taine applies the names of the Pagan and the Christian Renaissance respectively. The education of the Renaissance is best represented by Erasmus; that of the Reformation by

Luther and Melancthon. Speaking of the new life of this period, Mr. Oscar Browning terms it "the marvellous resurrection of the mind and spirit of Europe when touched with the dead hand of an extinct civilisation." "Then," adds M. Taine, "literature shot forth like a harvest." But we must not forget that our aim is scholastic—let us say in preference pædagogic—and not for the moment literary, in the ordinary sense of that word. Two names stand out prominently in this revival of letters, and each has claims upon our consideration. In 1424 Vittorino da Feltre, who died in 1477, had gained fame as the first practical schoolmaster of the Italian Renaissance; and Castiglione, who was born the year after Da Feltre's death, left us in his *Cortigiano* (the Counter) the sketch of a cultivated nobleman of those days. Each of these, however, affects a stratum of society which cannot by any extension of the term be called popular. Erasmus meets us one section lower down. He has left us a minute account of his method. He stands at the very antipodes of Mr. Lowe, for the child is to be formed into a perfect and a pious man by means of Latin and Greek. The Latin, however, that Erasmus would have taught was to be a living, not a dead, Latin, just as the Greek of De Quincey was not a dead Greek when he turned a *Times* leader into it for amusement, or as the Greek of Professor Blackie is not a dead but a living Greek, when, writing to modern Greeks, he cuts pleasant jokes to them on the old language. The great point Erasmus insisted upon was that letters were to be taught *inter ludendum*. The old Roman name for the school was to go back to its original etymology. Before the revival of letters female education had declined, but Erasmus would make the education of girls as important as that of boys. Thus he stands at the very op-

* See for an interesting picture of Life at Deventer, "Christian Schools and Scholars." Vol. II., p. 337, published anonymously by Longmans (1867).

posite point of the compass from the old ascetic, monkish system.

But still even this was the education for the few. It was Luther who, as has been well said, "brought the schoolmaster into the cottage" and laid the foundations of the system

which is the chief honour and strength of modern Germany, a system by which the child of the humblest peasant, by slow but certain gradations, receives the best education which the country can afford.—*The Schoolmaster, London.*

(To be continued).

RECENT CHANGES IN THE MATHEMATICAL EXAMINATIONS IN THE UNIVERSITY OF CAMBRIDGE.

BY I. TODHUNTER, M.A., F.R.S., HONORARY FELLOW OF ST. JOHN'S COLLEGE,
CAMBRIDGE.

THE mathematical examinations conducted in the University of Cambridge have long exerted a powerful influence on the study of mathematics both in England and in the Colonies; a short account of the recent changes made in the rules for conducting the examinations may therefore be not without interest for the readers of the *Canada Educational Monthly*. I confine myself to the examination for mathematical honours. This examination is open to students who have resided at the University for above three years and a quarter; those candidates who satisfy the examiners are divided into three classes, called respectively, Wranglers, Senior Optimes, and Junior Optimes; and each class is arranged in order of merit.

I shall not attempt to trace the history of the Cambridge mathematical examinations very fully; this will be found with sufficient detail, up to the year 1850, in a work by the late Dr. Whewell, entitled, *On a Liberal Education in General, and with Especial Reference to the University of Cambridge*. The general tendency of the changes successively introduced

has been to render the examinations more severe, by increasing the extent of matter involved and the amount of time occupied.

In January, 1839, the examination for the first time occupied *six* days; on each day two papers were set; to some of the papers two hours and a half were assigned, and to others three hours. In January, 1848, a considerable change was made; the examination now occupied *eight* days, and was divided into two parts. First, the elementary subjects were taken during three days, and candidates who failed to satisfy the examiners in this part were not allowed to proceed to the second part, which occupied five days and was devoted to the higher subjects. The *elementary* subjects may be roughly defined as those which do not require the use of the Differential and Integral Calculus. The method of conducting the examinations, commenced in 1848, continued until 1872 inclusive, with very slight modifications. Subsidiary regulations were introduced from time to time, the main object of which was to define the range of the examination; and on the whole the following subjects

were explicitly excluded: Electricity, Magnetism, Heat, Elliptic Functions, LaPlace's Co-efficients, Capillary Attraction, and the Figure of the Earth.

A system of examination which remained substantially unchanged during twenty-five years, may be supposed to have worked reasonably well; but in these days of incessant revolution, an institution which has endured for a quarter of a century is naturally exposed to the charge of being superannuated. Accordingly, another system was introduced in 1873: the examination now occupied nine days, and extended, with scarcely any exception, over the entire range of pure and mixed mathematics.

In a volume entitled, *The Conflict of Studies, and other Essays connected with Education*, published in 1873, I discussed the new system of examination just introduced, and passed a very unfavourable judgment on it. The force of the objections then urged has been fully justified by experience; the difficulty of conducting a competitive examination by written papers over such an enormous extent of subjects, soon became obvious, and such attempts as were made to overcome the difficulty proved to be quite inadequate.

Accordingly, a Committee, called in academical language a *Syndicate*, was appointed in May, 1877, to consider the higher Mathematical Studies and Examinations of the University. The *Syndicate* presented a report to the University on March 29, 1878; in this the difficulties which had been found to attend the working of the scheme commenced in 1873, were thus stated in moderate and cautious language:

"At present this examination is conducted in accordance with a scheme which, approved by the Senate on June 2, 1868, first came into operation in January, 1873. The principal changes introduced by that scheme

lay in a large addition to the subjects of examination and in the arrangement of the subjects in divisions, each division having a definite amount of credit, or marks assigned to it, made known approximately beforehand to the students. Although the experience of the working of that system is still a short one, the *Syndicate* believe that it is long enough to show that the system exercises an unfavourable influence on Mathematical study. By the extension of the range of subjects the severe strain of the competition has been intensified to an injurious extent; and, moreover, the hope expressed in the Report recommending the scheme, that Students would be encouraged by the new regulations to acquire an accurate and well-digested knowledge of a few subjects, instead of attempting imperfectly to master a great number, has not been realized. In the words of the Mathematical Board (Report, May 15th, 1875) it appears that the attention of the great majority has been spread over too wide a field for accurate or thorough knowledge to be attained in any division. The *Syndicate* are satisfied that under the present system a large number of Students are led, in the hope of gaining higher places in the *Tripes*, to attempt matter really beyond their grasp, to the neglect of that habit of thoroughness and precision in the less advanced subjects in which the educational value of the study in great degree subsists."

The *Syndicate* suggested a new scheme, which however was only partially accepted by the University, the principal novelty which it exhibited being rejected. The most advanced mathematical subjects were thrown into two groups, which were to be taken in *alternate years*, while the elementary subjects, and what we may call the *intermediate* subjects were to be taken every year. One

of these two groups consisted of Higher Algebra; Higher part of Theory of Equations; Higher Analytical Geometry, Plane and Solid; Hydrodynamics, including Waves and Tides; Sound; Physical Optics; Conduction of Heat; Vibrations of Springs and Bars; Elastic Solids. The other group consisted of Finite Differences; Higher Definite Integrals; Elliptic Functions; Theory of Chances, including Combination of Observations; Newton's Principia, Book I., Sections ix., xi.; Lunar and Planetary Theories; Figure of the Earth; Precession and Nutation; Electricity; Magnetism. Thus the suggestion amounted to this, that a student might entirely omit one of these groups or the other, according to the year in which he presented himself for examination.

It is obvious that many objections may be urged against this rough mechanical remedy for the unwieldy extent of the examination, and we cannot wonder that the University refused to adopt it. A more advantageous method of obtaining the end might have been proposed. Let the examination extend every year over the elementary and intermediate subjects, and in addition let certain of the most advanced subjects be taken, notice of which has been given at a previous date, say three years before. Thus if an important work were prescribed on any high mathematical subject, as for example, Probability or Electricity, this would naturally be appointed as a text-book for examination; and on the other hand University professors might arrange their lectures so as to assist students in mastering a selected subject. However, as the University rejected the proposition of a fixed cycle of subjects, the Syndicate had to devise some fresh expedient.

Accordingly, on October 25, 1878, the Syndicate made another report to the University, and the suggestions

then offered were adopted. Thus, finally, a new scheme has been constructed, which will come into operation for the first time in 1883. The main provisions of the scheme are these. The examination will in future be divided into three parts. The first part, consisting of the elementary subjects, will occupy three days; those who fail to satisfy the examiners on this part will not be allowed to proceed further. The second part, consisting of the intermediate subjects, will occupy three days. Both these parts of the examination will be carried on during the month of June; and the candidates who pass will be arranged in order of merit in the three classes of Wranglers, Senior Optimes, and Junior Optimes. Only the Wranglers will be allowed to proceed to the third part of the examination, which is to occupy three days of the following December, and to include all the advanced subjects. These subjects will be arranged in groups, and the questions so adjusted as to allow a candidate to distinguish himself on a selection of the subjects, made by himself. Candidates who satisfy the examiners in the third part are to be placed in three divisions, and each division is to be arranged *alphabetically*.

The most important point in the new scheme of examinations is that involved in the word *alphabetically*. This is the first attempt which has been made to moderate the excessive competition which has for a long time attended the higher mathematical examinations at Cambridge. At the University of Oxford, the system of placing the men in classes, and arranging each class alphabetically, has long prevailed; while at Cambridge, arrangement in order of merit has been almost universal. Each system has its disadvantages, and it has been said that Oxford examiners were often tempted to wish for the Cambridge

system, and Cambridge examiners to wish for the Oxford system. At Cambridge, however, there is a growing desire to moderate the excessive competition, and many hope that the last scheme for regulating the mathematical examination will effect some improvement.

A few words must be added with respect to another examination on high mathematical subjects, namely, that for Smith's prizes. Dr. Smith, formerly Master of Trinity College, left in 1768 two annual prizes, now amounting to about £23 each, for two commencing Bachelors of Arts, the best proficient in Mathematics and Natural Philosophy. From the year 1769 to the present date the prizes have been annually awarded; the examination takes place a few days after the close of that for mathematical honours, but is conducted by another set of examiners. When the prizes were originally instituted, the examination by which the places of the Wranglers, the Senior Optimes, and the Junior Optimes were determined, included other subjects besides Mathematics and Natural Philosophy; and accordingly there was nothing strange in the institution of a special examination and prizes for these selected subjects. But the former examination has now for many years been confined to the subjects for which the Smith's prizes are bestowed; and thus the anomaly is presented of two independent examinations, conducted in the course of a single month, for apparently the same end. The existence of the second examination seems to have been defended on the ground that it was different in character from the first, and devoted in general to the more advanced parts of Pure and Mixed Mathematics. But the system which was commenced in 1873 removed even this slender excuse for a double examination, because it extended the first examination

over the entire range of mathematics and in the work already named the present writer endeavoured to shew that the continuance of the Smith's prizes examination, as then conducted, could not be justified. In this matter also time has decided in favour of the writer's opinion; for since 1873 the undesirable result has too frequently occurred that the Smith's prizes examiners, by their award, have reversed the judgment already pronounced by those who arranged the list of wranglers. For example, in the year 1879, the first, second, and third wranglers were passed over, and the Smith's prizes given to two candidates who stood next on the list of wranglers. In the last scheme for conducting the mathematical examinations, it is proposed that the examination for Smith's prizes should cease, and the prizes be in future given for the best two essays on any subject or subjects in Pure Mathematics or Mixed Mathematics.

In conclusion, I will briefly advert to one circumstance which exerts a strong influence on the studies and examinations of the University of Cambridge, namely, the valuable prizes which, under the name of *Fellowships*, are gained by those who secure the foremost place in the Academic contests. The emolument of a Fellowship vary according to the conditions of tenure and the financial prosperity of the different colleges; as a rough average, we might perhaps take an income of two hundred and fifty pounds a year for ten years. In most cases the fellowship is terminated by marriage, and in many cases cannot be retained for more than an assigned period, unless the holder becomes a clergyman of the Established Church. As a testimony to the ability and an introduction to a future career the indirect value of a fellowship considerably exceeds the direct money payment. A late eminent

Cambridge scholar considered that the *first* place in either Mathematical or Classical Honours might be estimated as worth ten thousand pounds. In a recent biography of Bishop Selwyn, justly honoured on both sides of the Atlantic, the preposterous estimate is offered that a Fellowship was equivalent to sixty thousand pounds. However, when reduced to sober fact, the value of a Fellowship, direct and indirect, is a substantial amount; and on the average, the first six or seven wranglers succeed in obtaining fellowships. Hence arise many distinctive characteristics of the University system; for instance the severe competition and the strong excitement connected with the examinations for honours. To this it is owing that the mathematical instruction is almost entirely in the hands of *private tutors*; every candidate seeks for the special training which may best suit him in his struggle for distinction in the examinations. Thus, too, it happens that the professors of

the University, though men of the most conspicuous ability and reputation, do not gain many hearers of their lectures. Quite recently a distinguished Professor gave a course of lectures to a single student; the notebook of the student showed that the course had been extremely good. Perhaps, however, the attempt to teach the higher parts of mathematics by lectures is a mistake, and should now be abandoned in favour of the publication of standard treatises.

The Universities of Oxford and Cambridge are at present in the hands of Commissioners appointed by Parliament for the sake of effecting changes and reforms. Time will shew whether any success attends their efforts; the united revenues of the colleges in the two Universities cannot fall short of half a million of pounds annually, and all must wish that such a large income should be expended in the most advantageous manner.

THE HUMAN EYE: ITS STRUCTURE, FUNCTIONS, DEFECTS, AND PRESERVATION.

BY T. W. MILLS, M.A., M.D., RESIDENT PHYSICIAN OF HAMILTON CITY HOSPITAL.

THE human eye has been, since poets sung, the theme of rapturous description in their undying numbers; its glances have kindled into devotion more hearts than all the rest of the features of the face combined; its use brings more knowledge than any other sense, perhaps than all the others, apart altogether from reading, by which latter, by the way, less of our real knowledge is acquired than we suppose. In barbarous ages the greatest punishment inflicted, short of death, was the loss of the eyes. The blind

are, universally, objects of the greatest pity; yet in view of all this there is, if not a sad lack of knowledge in regard to the means of preserving the eyesight, certainly a lamentable decay in the world's ocular power in the mass, and an ever-increasing necessity to use at a very early age the various forms of "artificial eyes"—one of the results of our "advanced civilization" of which we are wont in this century to be so proud. Before the discovery of printing and the diffusion of reading matter, any sort of dissertation on

the eye would have been comparatively superfluous. "In much wisdom is much grief" indeed, as far as the organ of sight is concerned, in modern times at least. It is a fact of which educators, parents, and all interested in general progress cannot be too well aware that: (1.) In general weakness of the organ of vision, and in short-sightedness, there is a notable increase in the number of persons affected throughout the civilized world. (2.) This is most marked in the most highly civilized countries; lands in which illiteracy is least common, and in which the highest learning abounds, notably in England, France, America, and Germany, especially the latter. (3.) The age at which short-sight commences and reaches a most inconvenient degree of development is constantly and rapidly lessening; so that now a vast number of very young children are near-sighted. (4.) In both the number of persons affected and in the age at which the disease or infirmity appears, there is a marked change for the worse within the past decade. The aim of the writer, in this paper, will be to so far deal with the subject and so explain in a brief and popular way the anatomy and physiology of the eye that those of his readers who may not perhaps be fully aroused to the importance of the subject already will feel that it is one of those matters which should daily influence the actions of educators who may, by a few common-sense safeguards, assist in preserving the most valuable of our organs of sense, and thus confer on their students a lasting benefit.

*Anatomy and Physiology of the Eye.**—Let any student who desires

* The reader is earnestly urged to pursue the study of the eye by the dissections proposed, as difficulties will then disappear that will otherwise be insurmountable. The technical terms are not essential to a correct understanding of the subject; but are inserted for those more especially who may wish to have their knowledge in a scientific form.

to understand the anatomy of the eye and have therefore a sure basis for a sound physiology, obtain two ox's eyes, the large size of which is an advantage in this case; boil one until it is quite solid throughout, and preserve the other for use in the natural state: both should be fresh. Divide the boiled one with a sharp knife in a direction from before backwards; this will show the relative position of the different parts, especially of the various bodies that act as lenses; while a transverse section of the un-boiled eye (best made with a sharp scissors) will present a more truthful and detailed picture of the general appearance in life. The following, to describe briefly, may be observed, and the appearances are sufficiently like those of the human eye to answer almost every purpose; 1. Entering at the back, nearer the internal than the outer part of the ball the *optic nerve*; afterwards expanding as the innermost coat or tunic of the eye, is the *retina* which is almost transparent and of very delicate structure; its purpose the reception of impressions from the rays of light. 2. Next to this, passing outwards, the *choroid coat*, thicker than the preceding and rendered quite opaque by abundance of black pigment; its purpose the absorption of rays of light passing through the *retina*, so that they may not be refracted and thus blur the image; this is also the *vascular coat*, or that in which blood-vessels are most abundant. 3. Outermost, the dense, tough, inelastic, thick *sclerotic tunic*; whose great purpose is to confine, keep in place, and protect the more delicate parts within. 4. All these tunics end abruptly anteriorly, where, like a segment of a smaller sphere set into a larger, or like a watch crystal in its case, we see the thick but perfectly transparent and colourless *cornea* which is without blood-vessels and its structure allied to cartilage. 5. Sus

pended like a circular curtain; with an opening in the centre (*pupil*), across the eye and attached at the junction of the *sclerotic* with the *cornea* is the *iris*, a muscular structure the most delicate of this class in the body, composed of fibres that radiate from the circumference to the centre, but with a ring of circular fibres to control the size of the central opening or pupil; the purpose of the entire arrangement being, in fact, to regulate the quantity of light admitted to the *retina*. 6. Some little processes (ciliary bodies) which serve to steady the crystalline lens. 7. The *crystalline* lens, a bi-convex, beautifully transparent object, with a very hard centre. This object is the most important of the refracting bodies in the eye; the *aqueous humour*, which fills up the space in front of the lens before and behind the *iris*, being comparatively unimportant. 8. The *vitreous humour*, intermediate in density between the aqueous and crystalline lenses fills the greater part of the cavity of the ball which lies behind the crystalline lens. The supernumerary apparatus connected with the visual organs is especially important, not to vision, but to the preservation of the main parts of the eye in good order; and in protecting and saving it so that it may perform its functions agreeably and for as long a period as the general organism of the individual may last. Of these supplementary parts the principal are: 1. *Eyelids*, which are composed of cartilage (translucent) covered with skin externally and mucous membrane internally, in the latter of which some glands are imbedded. 2. *Eyebrows* and *eyelashes* to protect the eye from dust, sweat, excess of light, etc., not to speak of their relation to comeliness. 3. The lacrymal gland, situated at the upper and outer part of the socket of the eye; its secretion (tears) serving to cleanse the eye constantly, and to lubricate an organ

that is in almost continuous motion during waking hours; the surplus fluid being carried off into the nasal cavity by the lacrymal duct, situated at the inner angle of the eye-lids. Special attention is directed to the conjunctiva, the mucous membrane that lines the inner surface of both lids and is thence reflected across the front of the globe of the eye in which part it must, of course, be transparent. This membrane is of the utmost importance: in almost all diseased states of the organ of sight it is more or less inflamed. "Sore eyes" generally means inflammation of the conjunctiva—it is, in fact, very much exposed. If a clear idea of the anatomy of the eye has been gained, in the practical way proposed at the commencement of this description, the physiology of the organ of sight may be readily comprehended.

Physiology of the Eye.—The rays of light pass through the transparent *conjunctiva* covering the *cornea*; then through the latter are admitted through the pupil, the size of which depends upon the action of the *iris* (a reflex one)—the opening being greater the smaller the quantity of light; when the rays reach the aqueous humour, or rather when passing through the cornea, refraction begins. While owing to the crystalline lens being bi-convex its refracting power is so great that with the help of the vitreous humour when the rays reach the back of the eye and fall on the retina (chiefly that point called the "yellow spot," the most sensitive part) it is found that they have crossed each other so that the image formed is necessarily inverted. Now were it not that the *iris*, which is opaque from its being pigmented on its posterior surface, cuts off all but central rays, and thus focuses the image at the back of the eye; and were it not that the choroid, by its pigment, absorbs rays that pass through the retina, there could be no

perfect image formed, and consequently no distinct vision. Now, that the crystalline body acts as a powerful lens may be demonstrated by removing it from the freshly obtained eye of some animal and placing it over a mark, such as an arithmetical character, when it will cause the latter to appear much magnified.

To understand clearly the various aberrations in vision, the manner in which the image is formed on the retina must be kept very fully in view. It must be remembered that by the power of motion in the eyes by which they adapt to the position of the object, and by the power in the lens capsule by which the lens itself is altered in shape, the eye can quickly and readily suit itself to the distance of objects; and always when perfect vision is to be attained must the image fall exactly on the retina—not before it or behind it. What change takes place in the anatomy of the eye which renders the subject short-sighted (myopic)? A very marked one indeed. The eye becomes too large; its long diameter too great, that is its antero-posterior diameter, (its measurement from before backward.) The greater prominence of the segment of the smaller sphere (cornea), the greater bulging of the eye; the staring appearance of *myopic* eyes is due to this real enlargement. Exactly the opposite takes place in the eyes of the aged; they get smaller; partake in the common shrivelling and waste; the eye is shorter from before backwards, in consequence the cornea and crystalline lens flatten. As a result of these two opposite states it will at once be seen that the *myopic* eye refracts light too strongly, while the *presbyopic* eye does not focus strongly enough. The one class of persons have therefore to use concave, the other convex glasses, to correct the respective deficiencies of their organs of sight. The near-sighted

person brings objects close to the face so that the lenses of his eyes may be required to exert more refracting power—in other words, to bring the image in the proper place on the retina, and not before it. As distance from the object lessens the amount of refraction required for a perfect image, the aged hold objects off to correct the defect of their organs. The great evil, however, that educators have to grapple with is myopia, which is increasing noticeably in all our schools. Before inquiring into its causes it may be well to consider some of its necessary sequences. By watching anyone looking at an object, it will be observed that the nearer the object is brought to the eyes, the more they incline inwards towards the nose, until finally they cannot move any further in this direction, when they give up, as it were, either closing and then looking outwards or forwards, or in some way altering their direction. Each eye is moved by six muscles attached behind to the most posterior part of the socket, and in front a short distance behind the junction of the sclerotic and cornea. Now if from any inherited weakness, or if from excessive use in turning the eyes inwards, due to myopia, any of these muscles get relatively weakened, the result must be that the stronger ones will overpower the weaker—the eye will involuntarily turn in the wrong direction, and squint (strabismus) will be the result. Again, the excessive motion of the ball, perhaps the undue pressure on it, together with the constant bending down of the head to look at books on tables, to write, etc., favours congestion or excess of blood in the visual organ, and thus exaggerates the size of the eye, and of necessity the myopia; so that if old habits be persevered in the case must go from bad to worse. Moreover there are few myopic persons who are not weak-eyed, if not subject to at-

tacks of actual inflammation. But what are the causes of this prevalent infirmity in the youth of our day? This is a highly important question for educators to consider. Waiving a scrofulous taint, poor digestion, owing to faulty habits in eating, etc.—the cause above all others that is operating in producing this form of degeneration, as of so many others among intellectual people, is excessive use, and especially in this case over-use, amid unfavourable surroundings. Now happily we can, if we will, strike at the root of these evils. What are the facts? A very young child is required for five or six hours of each day to look at small characters in books, on maps, black-boards, etc., and to “pay attention” all the time. This is not all; he is required again to con books, for some hours often, at night. Now if any other organ were thus used, would it hold out any better than the eye? With the youth preparing for a severe examination this strain is frequently continued till midnight, or after it. No man ever burned “midnight oil,” for any length of time, who did not pay for it sooner or later, and dearly too, by some defect in the organs of vision. But after all, it is not alone to over-use, but to a very large degree to the circumstances under which the organs are used that *myopia* must be attributed in not a few cases. The great law of rest is violated as in the case of no other organ of the body, unless perhaps, the brain. The student does not cease to look when his eyes are warning him by the sense of fatigue. When the light becomes an enemy why does he not withdraw his eyes from that enemy? Most people will stop eating when their stomachs are full; very few are equally ready to shut out excess of light from the eye. The eyes, however weakly they may be, rarely suffer in the open air with diffused day-light. Educa-

tors must deal with two capital evils: (1) The introduction of light into the school-room in such a way that it falls directly on the visual organs of the pupils. (2) Leaving rooms entirely unprovided with any means of regulating the supply of light. A steady light is most essential; every one knows the consequence of looking steadily at the sun—momentary blindness; surely then sudden changes must tell injuriously, if in a less degree, than in the case just cited. Now observe that in the open air the eyes are but little exposed to such sudden changes. A third matter must be attended to by the parent and the student himself—that is, protecting the eye from the direct glare of lamps. All persons should have an ordinary shade on the lamp by which they read; while those afflicted with *myopia* should take special precautions as to position of the body, etc., so that the eyes may have just the exact quantity of light they can comfortably bear; and that coming to them in a direction such that neither by reflection nor refraction shall it impinge directly on the organ of sight. During sleep the room should be dark, so that the eye may have perfect rest; to lie facing a window will act injuriously on this sensitive organ; for it will be remembered that, though the eyes be closed, the cartilages of the lids admit a certain quantity of light. The great remedy for almost all ordinary ailments of the eyes, and especially of short-sight, is rest. Books must be abandoned, especially at night; the rooms used dimly lighted; the window-blinds green or blue, and numerous other common sense precautions taken to ensure as much optical rest as possible. All oculists are agreed that spectacles to correct *myopia* should be used; the writer has, however, known a case of well marked short-sight cured in two years with attention to the principles of

rest insisted upon above, the use of blue glasses merely to protect the eye; with attention to the general health. It is almost needless to remark that in this case there was decided relaxation from the severe strain of study that had been indulged in for some time previous, and to which the myopia was almost entirely due. The writer would draw special attention to a fact not commonly recognized, that an over-heated, dry, and impure atmosphere has a most injurious effect on the eye-sight. There are a great many other points in connection with this subject that demand attention, but this paper has already

reached a sufficient length, nor can the great question of the education of the eye be taken up on this occasion without unduly trespassing on the reader's patience, which has been somewhat taxed already, unavoidably in a subject requiring unusually close attention. If the anatomy and physiology of the organs of vision have been made clear; if serious practical mistakes have been exposed; if the few common-sense hints offered be acted upon; some little service will have been rendered for a class of cases that do not reflect favourably on our civilization.

OPPORTUNITY.

In harvest times, when fields and woods
 Outdazzle sunset's glow,
 And scythes clang music through the land,
 It is too late to sow.
 Too late! too late!
 It is too late to sow.

In wintry days, when dreary earth
 Lies cold in pulseless sleep,
 With not a blossom on her shroud,
 It is too late to reap.
 Too late! too late!
 It is too late to reap.

When blue-eyed violets are astir,
 And new-born grasses creep,
 And young birds chirp, then sow betimes,
 And thou betimes shall reap.
 Then sow! then sow!
 And thou betimes shall reap.

ARTS DEPARTMENT.

ARCHIBALD MACMURCHY, M.A., MATHEMATICAL EDITOR, C. E. M.

Our correspondents will please bear in mind, that the arranging of the matter for the printer is greatly facilitated when they kindly write out their contributions, intended for insertion, on one side of the paper ONLY, or so that each distinct answer or subject may admit of an easy separation from other matter without the necessity of having it re-written.

We have received solutions to a number of the questions proposed in our last issue, but our space will admit of giving only two of them; these are by the proposer, Prof. Edgar Frisby, M.A., Naval Observatory, Washington. Solutions were also sent in to the same problems by Messrs. Barton and MacMurchy, University College, Toronto.

It is with special pleasure that we direct the attention of our readers to the article on recent changes made in the rules for conducting the examinations for *honours* at the University of Cambridge, which appears in this number, from the pen of the eminent and well-known Cambridge Mathematician, Isaac Todhunter, M.A., F.R.S., widely known in this country through his many and valuable works on Mathematics. The writer of the article is also the author of the volume "The Conflict of Studies, and other Essays connected with Education," published in 1873, a book which every educator should have and carefully read.

SOLUTIONS.

A solution for the following has been asked for :

Let ABC be an isosceles triangle; BA , BC equal sides; produce BC ; draw ED cutting AC in D so that $ED=DF$, E point in side AB and F in side BC produced; prove $EB+BF=AB+BC$.

—Let ABC be an isosceles $\triangle$ having the $\angle BAC = \angle BCA$. Produce BC , and draw EDF so that $ED=DF$; then $EB+BF=AB+BC$. Join EC and AF , and draw $EG+FH \perp$ to AC . Then since $ED=DF$, $\triangle EDC=\triangle CDF$, and $\triangle EAD=\triangle DAF$,

$\therefore$ whole $\triangle AEC$ =whole $\triangle CAF$,

$\therefore \perp EG = \perp FH$,

and $\angle EGA = \text{rt. } \angle = \angle CHF$,

and $\angle HCF = \angle BCA = \angle BAC$.

$\therefore EA=FC$ (26.1),

to each add EB and BC ,

$\therefore EB+BF=AB+BC$.

F. BOULTBEE, *Univ. Coll.*

40. Sum to n terms and to infinity.

$$\frac{7}{3 \cdot 4 \cdot 5 \cdot 6} + \frac{11}{4 \cdot 5 \cdot 6 \cdot 7} + \frac{17}{5 \cdot 6 \cdot 7 \cdot 8} + \dots$$

The second differences in the numerator are constant, and therefore it can be assumed to be of the form $(an^2 + bn + c)$, making $n=1, 2$ and 3 respectively, we have the three equations

$$a + b + c = 7$$

$$4a + 2b + c = 11$$

$$9a + 3b + c = 17$$

whence $a=1, b=1, c=5$,

and the n^{th} term is

$$\frac{n^2 + n + 5}{(n+2)(n+3)(n+4)(n+5)}$$

This can be resolved into partial fractions of the form

$$\frac{A}{n+2} + \frac{B}{n+3} + \frac{C}{n+4} + \frac{D}{n+5} = \frac{n^2 + n + 5}{(n+2)(n+3)(n+4)(n+5)}$$

whence $A=\frac{7}{6}, B=-\frac{11}{2}, C=\frac{17}{2}, D=-\frac{25}{6}$.

If we had reduced the left-hand member to a common denominator and equated numerators, the coefficient of n^3 would have been $A+B+C+D$; and as there is no n^3 on the right-hand side, we have plainly $A+B+C+D=0$, and this will always happen when the general term has its denominator at least two dimensions greater than its numerator.

The series then becomes, by giving n successive from 1 to n ,

$$\begin{aligned}
 S &= A \left\{ \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+2} \right\} \\
 &+ B \left\{ \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+2} + \frac{1}{n+3} \right\} \\
 &+ C \left\{ \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+3} + \frac{1}{n+4} \right\} \\
 &+ D \left\{ \frac{1}{6} + \dots + \frac{1}{n+4} + \frac{1}{n+5} \right\} \\
 &= A \left(\frac{1}{3} \right) + (A+B) \frac{1}{4} + (A+B+C) \frac{1}{5} \\
 &+ (B+C+D) \frac{1}{n+3} + (C+D) \frac{1}{n+4} + D \left(\frac{1}{n+5} \right) \\
 &= \frac{A}{3} + \frac{A+B}{4} + \frac{A+B+C}{5} \\
 &- \left\{ \frac{A}{n+3} + \frac{A+B}{n+4} + \frac{A+B+C}{n+5} \right\}
 \end{aligned}$$

because $A+B+C+D=0$.

Substituting the values of A , B , C and D this becomes

$$\frac{5}{36} - \frac{3n^2 + 15n + 25}{3(n+3)(n+4)(n+5)}$$

when n is infinite this value is equal to $\frac{5}{36}$,

because $\frac{A}{n+3}$, $\frac{A+B}{n+4}$ and $\frac{A+B+C}{n+5}$ are each equal to 0.

NOTE.—All the middle terms vanish because $A+B+C+D=0$; and this method can be applied to all those series the general term of whose numerator is at least two dimensions lower than the denominator, and when any term can be found from the preceding by changing n into $n+1$.

Proceeding in the same way with question 41,

$$\frac{11}{2 \cdot 3 \cdot 4 \cdot 5 \cdot 6} + \frac{35}{3 \cdot 4 \cdot 5 \cdot 6 \cdot 7} + \frac{81}{4 \cdot 5 \cdot 6 \cdot 7 \cdot 8} + \frac{155}{5 \cdot 6 \cdot 7 \cdot 8 \cdot 9},$$

etc., we see that the third differences are constant, and the general term becomes

$$\frac{n^3 + 5n^2 + 2n + 3}{(n+1)(n+2)(n+3)(n+4)(n+5)}$$

$$A = \frac{5}{24}, B = -\frac{44}{24}, C = \frac{90}{24}, D = -\frac{44}{24}, E = -\frac{7}{24}$$

and as before, $A+B+C+D+E=0$.

and the series is

$$\begin{aligned}
 &\frac{5}{24} \left\{ \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+1} \right\} \\
 &- \frac{44}{24} \left\{ \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+1} + \frac{1}{n+2} \right\} \\
 &+ \frac{90}{24} \left\{ \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+2} + \frac{1}{n+3} \right\} \\
 &- \frac{44}{24} \left\{ \frac{1}{5} + \frac{1}{6} + \dots + \frac{1}{n+3} + \frac{1}{n+4} \right\} \\
 &- \frac{7}{24} \left\{ \frac{1}{6} + \dots + \frac{1}{n+4} + \frac{1}{n+5} \right\}
 \end{aligned}$$

$$\begin{aligned}
 S &= \frac{5}{24} \left(\frac{1}{2} \right) + \frac{1}{24} (5-44) \left(\frac{1}{3} \right) + \frac{1}{24} (5-44+90) \\
 &\quad \left(\frac{1}{4} \right) + \frac{1}{24} (5-44+90-44) \left(\frac{1}{5} \right) \\
 &- \left\{ \frac{5}{24} \left(\frac{1}{n+2} \right) + \frac{1}{24} (5-44) \left(\frac{1}{n+3} \right) \right. \\
 &\quad \left. + \frac{1}{24} (5-44+90) \left(\frac{1}{n+4} \right) \right. \\
 &\quad \left. + \frac{1}{24} (5-44+90-44) \left(\frac{1}{n+5} \right) \right\}
 \end{aligned}$$

The intermediate terms all vanishing, this readily reduces to

$$\frac{73}{480} - \frac{4n^3 + 34n^2 + 86n + 73}{4(n+2)(n+3)(n+4)(n+5)},$$

the value when n is infinite being $\frac{73}{480}$.

These results can be easily tested in both cases by making $n=0, 1, 2, 3, 4$, etc.

For this problem

$$n=0 \text{ gives } S=0,$$

$$n=1 \quad S = \frac{73}{180},$$

$$n=2 \quad S = \frac{7}{240}, \text{ \&c.}$$

In the first problem we have $n=0 \quad S=0$,

$$n=1 \quad S = \frac{7}{3 \cdot 4 \cdot 5 \cdot 6}, \quad n=2 \quad S = \frac{82}{3 \cdot 4 \cdot 5 \cdot 6 \cdot 7},$$

$$n=3 \quad S = \frac{860}{3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8}, \quad n=4 \quad S = \frac{9240}{3 \cdot 4 \cdot 5 \cdot 6 \cdot 7 \cdot 8 \cdot 9}$$

which can be easily verified.

PROBLEMS.

69. Solve $x^2y + xy^2 = a^2b + ab^2$

$$\frac{1}{x^3} + \frac{1}{y^3} = \frac{1}{a^3} + \frac{1}{b^3}.$$

70. Solve $(x+y)(x+z) = a^2$

$$(x+z)(y+x) = b^2$$

$$(z+x)(z+y) = c^2.$$

71. Solve $\frac{1+x^3}{(1+x)^3} + \frac{1-x^3}{(1-x)^3} = \frac{2z}{3}.$

72. Solve $\sqrt[3]{a-x} + \sqrt[3]{x-\beta} - \sqrt[3]{a-\beta} = 0.$

73. If S be the semi-perimeter of a $\triangle$ whose sides are a, b, c , and r, r', r'', r''' the radii of the inscribed and three escribed circles, prove that

$$S : S-a : S-b : S-c :: \frac{1}{r} : \frac{1}{r'} : \frac{1}{r''} : \frac{1}{r'''}$$

74. Find the locus of a point such that the sum of the squares of the tangents from it to two given circles will be constant.

75. If a, b, c be the lengths of the chords of three consecutive arcs of a circle, prove that when these arcs together make up a semi-circle, its radius is given by the $=n$

$$4r^3 - (a^2 + b^2 + c^2)r - abc = 0.$$

76. Given the external and internal bisectors of the vertical $\angle$ of a $\triangle$, and the sum or difference of the sides, construct it.

77. Prove that $\frac{\sin 8A}{\cos 3A \cos 5A}$

$$= \frac{\sin A + \sin 3A + \sin 5A + \sin 7A + \sin 9A}{\cos A + \cos 3A + \cos 5A + \cos 7A + \cos 9A}$$

$$+ \frac{\sin A + \sin 2A + \sin 3A + \sin 4A + \sin 5A}{\cos A + \cos 2A + \cos 3A + \cos 4A + \cos 5A}$$

W. J. ROBERTSON, M.A.,

Math. Master, Coll. Inst., St. Catharines.

78. Let ABC be a triangle; D, E, F the points wherein its sides are touched by its inscribed circle; H, K, L the feet of the perpendiculars from the vertices of the triangle DEF on the opposite sides; Δ, R, r

the area of the triangle ABC , and the radii of its circumscribed and inscribed circles; and Δ_1 the area of the triangle HLK , prove that

$$\Delta^{\frac{1}{3}} : \Delta_1^{\frac{1}{3}} = 2R : r.$$

79. If the squares of the sides of a triangle are in arithmetical progression, the tangents of the angles are in harmonical progression.

80. If A, B, C be any three quantities; $s_1, s_2, s_3, l_1, l_2, l_3$ the G. C. M's and L. C. M's of B and C, A and C, A and B respectively; and if G, L be the G. C. M. and L. C. M. respectively of A, B and C ,

prove that $\frac{L}{G} = \sqrt{\frac{l_1 l_2 l_3}{s_1 s_2 s_3}}.$

81. Given $x+y+z=0$, prove that

$$\left(\frac{y-z}{x} + \frac{z-x}{y} + \frac{x-y}{z}\right) \left(\frac{x}{y-z} + \frac{y}{z-x} + \frac{z}{x-y}\right) = 9.$$

82. ABC is a triangle; a new triangle is formed by joining the feet of the perpendiculars drawn from the angles A, B, C on the sides respectively opposite to them: prove that according as one side of the original triangle is an A. G. or H. mean between the other two, so is the cosine of one of the semi-angles of the new triangle an A. G. or H. mean between the cosines of the semi-angles of the other two.

83. $ABCD$ is a quadrilateral; two points P, Q are taken in AD, BC respectively such that $AP : PD = CQ : QB$. From P, Q lines PP', QQ' are drawn parallel and in same direction as BC, DA . Shew forces represented by AB, CD, PP', QQ' are in equilibrium.

ANGUS MACMURCHY,

Univ. Coll.

84. In the equation $ax^2 + bx + c = 0$, find both values of x in the following cases:

1st, $a=0$; 2nd, $c=0$; 3rd, $a=c=0$; 4th, $b=c=0$; and 5th, when $a=b=0$.

85. Solve the equations $x^3 + y^3 = 35$,
 $x^2 + y^2 = 13$,

giving the six values of x and y .

86. Solve $\frac{11}{x-3} - \frac{39}{x-4} + \frac{45}{x-5} - \frac{17}{x-6} = 0$, giving the three values of x .

87. Prove that $(ax+by+cz)^3 + (bx+cy+az)^3 + (cx+ay+bz)^3 = 3(ax+by+cz)(bx+cy+az)(cx+ay+bz)$, if $a+b+c=0$, or if $x+y+z=0$.

88. If $x+y+z=2s$, then will $(s-x)^3 + (s-y)^3 + (s-z)^3 + 3xyz = s^3$.

89. If $x+y+z=0$, then will $2(x^9+y^9+z^9) - 9xyz(x^6+y^6+z^6) + 21x^3y^3z^3 = 0$, and also $x^9+y^9+z^9 + 9x^4y^4z^4(x^{-3}+y^{-3}+z^{-3}) - 30x^3y^3z^3 = 0$.

90. If $\frac{b^2+c^2-a^2}{2bc}$ always lies between ± 1 ,

then will the sum of any two of these quantities be greater than the third.

91. If $(-1)^3 + (-1)^3 = y$, show that its value is given by the equation $y^3 - 3y + 2 = 0$, and solve this equation.

92. If A , B and C are the three angles of any plane triangle whose area is Δ , then will

$$\cot A + \cot B + \cot C = \frac{a^2 + b^2 + c^2}{4\Delta}$$

$$a^2 \cot A + b^2 \cot B + c^2 \cot C = 4\Delta$$

$$1 + \cot^2 A + \cot^2 B + \cot^2 C = \frac{a^4 + b^4 + c^4}{8\Delta^2}$$

PROF. FRISBY, M.A.,
Naval Observatory, Washington.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

PROFESSOR HUXLEY AT OXFORD.

Prof. Huxley's address to the prize-winners at a recent Oxford University contest is so full of good advice to students, and so suggestive to teachers, that we give the following extracts from it:

"Upon whatever career you may enter, intellectual quickness, industry, and the power of bearing fatigue are three great advantages. But I want to impress upon you, and through you upon those who will direct your future course, the conviction which I entertain that, as a general rule, the relative importance of these three qualifications is not rightly estimated; and that there are other qualities of no less value which are not directly tested by school competition. A somewhat varied experience of men has led me, the longer I live, to set the less value upon mere cleverness; to attach more and more importance to industry and to physical endurance. Indeed, I am much disposed to think that endurance is the most valuable quality of all; for industry, as the desire

to work hard, does not come to much if a feeble frame is unable to respond to the desire.

"Everybody who has had to make his way in the world must know that while the occasion for intellectual effort of a high order is rare, it constantly happens that a man's future turns upon his being able to stand a sudden and a heavy strain upon his powers of endurance. To a lawyer, a physician, or a merchant it may be everything to be able to work sixteen hours a day for as long as is needful, without yielding up to weariness. Moreover, the patience, tenacity, and good humour which are among the most important qualifications for dealing with men, are incompatible with an irritable brain, a weak stomach, or a defective circulation. If any one of you prize-winners were a son of mine, and a good fairy were to offer to equip him according to my wishes for the battle of practical life, I should say, 'I do not care to trouble you for any more cleverness; put in as much industry as you can instead; and, oh, if you please, a

broad, deep chest, and a stomach of whose existence he shall never know anything.' I should be well content with the prospects of a fellow so endowed.

"The other point which I wish to impress upon you is, that competitive examination, useful and excellent as it is for some purposes, is only a very partial test of what the winners will be worth in practical life. There are people who are neither very clever nor very industrious, nor very strong, and who would probably be nowhere in an examination, and who yet exert a great influence in virtue of what is called force of character. They may not know much, but they take care that what they do know they know well. They may not be very quick, but the knowledge they acquire sticks. They may not even be particularly industrious or enduring, but they are strong of will and firm of purpose, undaunted by fear of responsibility, single minded and trustworthy. In practical life a man of this sort is worth any number of merely clever and learned people. Of course I do not mean to imply for the moment that success in examination is incompatible with the possession of character such as I have just defined it, but failure in examination is no evidence of the want of such character.

"And this leads me to administer, from my point of view, the crumb of comfort which on these occasions is ordinarily offered to those whose names do not appear upon the prize-list. It is quite true that practical life is a kind of long competitive examination, conducted by that severe pedagogue, Professor Circumstance. But my experience leads me to conclude that his marks are given much more for character than for cleverness. Hence, though I have no doubt that those boys who have received prizes to-day have already given rise to a fair hope that the future may see them prominent, perhaps brilliantly-distinguished members of society, yet neither do I think it at all unlikely that among the undistinguished crowd there may lie the making of some simple soldier whose practical sense and indomitable courage may save an army led by characterless cleverness to the brink of destruction, or

some plain man of business, who by dint of sheer honesty and firmness may slowly and surely rise to prosperity and honour, when his more brilliant compeers, for lack of character, have gone down, with all who trusted them, to hopeless ruin. Such things do happen. Hence let none of you be discouraged. Those who have won prizes have made a good beginning; those who have not, may yet make that good ending which is better than a good beginning. No life is wasted unless it ends in sloth, dishonesty, or cowardice. No success is worthy of the name unless it is won by honest industry and brave breasting of the waves of fortune. Unless at the end of life some exhalation of the dawn still hangs about the palpable and the familiar; unless there is some transformation of the real into the best dreams of youth, depend upon it whatever outward success may have gathered round a man, he is but an elaborate and a mischievous failure."

MR. GLADSTONE AT WELLINGTON COLLEGE.

Recently Mr. Gladstone, while on a visit to his son-in-law Mr. D. J. Medley, Head Master of Wellington College, Hants, was made the recipient of an address dwelling upon the interest with which his family connection with the school would be remembered in its history, and claiming his sympathy, as a friend of learning and education, for one of the youngest of English public schools.

Mr. Gladstone in reply said—"Mr. Medley and gentlemen, you have been pleased to say that this day is a day of great interest to you. I can assure you in return, with equal sincerity and truth, that it is, and is of necessity, a day of great interest to me. There are few, if any, days of greater interest, or of pleasure, and satisfaction, or days that one would more readily multiply, if opportunity permitted, than days in which those who have run their career, and that in my case a somewhat long career, are permitted to come into company and close contact with the young among their countrymen, with those who are passing through the same stage of

life that we have passed through, and through the same school discipline, with its perils, its opportunities, its responsibilities, and its advantages. This contact brings to mind the reflection, "What is the meaning of the English Public School?" and in this address you have most appropriately reminded me of its character by your reference to your own position, and by the comparison which you draw with the position of another great public school. You could not have made an allusion more grateful to my feelings than your allusion to Eton. You know, gentlemen, what your own impressions would be about anybody who did not look back in an enthusiastic gratitude on the public school to which he had himself belonged. That is characteristic of us all. We are none of us impartial judges, and I would almost say we ought not to be impartial judges of the relative position of those public schools separately taken and judged. As to Eton, perhaps I might say without offence that she has obtained in many, if not all respects, a kind of primacy among the public schools of England, and such is her position, such the incidents of her history, her situation, her visible and palpable features, that if a foreign friend consulted me upon the objects that he should make a point of seeing in a visit to this country, I should say to him, "Unless you see Eton you will not have seen England." (Loud cheers.) But that does not create any tendency to injustice or indifference in the estimate of other schools. The public schools of England correspond in the general character of the picture Eton presents in bringing into most interesting association what is old and what is new. At the beginning of this century they could hardly be called more than about four or five in number. Since that time the population of Great Britain has fully doubled in number, but the public schools of the country have increased in a much larger proportion, and might probably be called now four times as many as they were at the beginning of the century. Continuing, the right hon. gentleman gave the scholars the following advice:—The great business of this training is not merely to

enable you to obtain professional success, it is to make you men—men in the highest sense, and in the highest degree. It is to bring out all your capacities, not for the sake simply of the purposes they are to serve in life, but for their own sake. The whole of life is, after all, simply an education, and the professions and businesses to which you may be hereafter devoted, are only part and portion of that education. Don't suppose they are ends in themselves. Their ends, as far as you are concerned, are the effects that they produce upon your character and your faculties, and there comes into view what undoubtedly must be admitted to be the danger of the new system—of the modern spirit in education. I know not whether it is owing to our degeneracy—I am afraid it is the truth that we have a much smaller amount in this 19th century of the disinterested, ardent, enthusiastic love of knowledge for its own sake than our forefathers had five hundred years ago. But our system of education is now marked by a method of sharp competition and of immediate rewards. I acknowledge all the benefits of that method. I see the great results that it has produced; but there is a peril in it also, and that is the peril of your believing that when you have gone through the school, when you have obtained the prize, when you have realized the professional success as the consequence of early distinction, you should look upon that success as the end of your education. It is not the end of your education. The end of your education is in the effect it produces upon yourselves, upon the state to which it brings you, and in which it leaves you; and the distinction is a very real one, for there are many who acquire much knowledge, yet whose minds remain comparatively barren, simply because they have been content to look upon knowledge as a mere commodity, as a mere tool intended to work out some exterior purpose, and they have forgotten that it is only part of a great, comprehensive, and noble process to which we are all subjected in this life for the unfolding, the ripening, and the purifying of character, for enabling us in the highest sense to discharge our

duty to God and to man. It is necessary for you all not only to be stirred up to the keen pursuit, which I should be the last to discourage, of those prizes which are open to you, either at school, in college, or in life, but never to forget that there are higher enjoyments and higher duties connected with the due appreciation of knowledge for its own sake, and to remember that it is the effort to win, rather than the victory, which has real value. For while the victory in a competition may be the means of laying the mind asleep, and inducing it to rest upon what it has done, yet the effort, the true, honest, manful effort, whether it be successful or not, will have left its mark upon the character, will have left you more competent and more vigorous for the discharge of every other duty, and better disposed to face and grapple with the difficulties which in one shape or another must be your lot in life. Well, gentlemen, you are here destined for many careers, many of you, no doubt, following probably the example of distinguished parents, will devote your lives to the defence of your country in the military profession; some of you will find your way into the sacred profession, which has in other times been held to be one of the loftiest to which a human being could devote himself, and which I believe, so far from declining in its importance or in that true promise of internal reward that it offers, is becoming from day to day more and more arduous, and for that very reason more and more honourable, more and more attractive, as it ought to be, to honourable minds. Many of you will find your way into other professions; some of you will probably take part in the government of your country, but rely upon it that it is not for one of those professions alone, it is for all, that the benefits of education are intended. They all rest upon the same footing. They are all directed to the same end—the end of giving glory to God by the performance of duty, by the due use and full improvement of the faculties which He has given. In this process you are engaged; you are not the first generation of scholars that has passed the Wellington College,

but you are amongst the first. Let us think what this College is to be in future times. I do not entertain any doubt but that, as it has already taken, so it will permanently hold, a high and honourable place amongst the institutions of the country. I trust, and I believe, that generations hence, others, worthier I hope than I, may stand where I am now standing, to encourage the youth of that day, as I would fain encourage the youth of this day, to honourable, determined, and manful exertion."

MR. BRIGHT AT BIRMINGHAM.

The present Mayor of Birmingham, Alderman Collings, having occasion to inaugurate the opening of the new municipal building, did not seek, as is customary, to secure the presence of some royal or other distinguished personage for the occasion; but preferred to do it in a much more significant and praiseworthy fashion by inviting all the elementary teachers of that important midland town to a conversazione. This event is noteworthy as indicating the estimate in which the teaching profession is beginning to be held in England. Its importance was enhanced by the presence of Mr. John Bright, who made a speech on Education, the sentiments of which were quite in harmony with the occasion. In the course of his remarks, Mr. Bright said: "I beg to thank the Mayor for permitting me to be here to-night. I think that to see these rooms, to see this audience, to feel that I am in the presence of five or six hundred persons who are engaged in the honourable office of teaching in the elementary schools in Birmingham, is a great pleasure. The meeting I hold to be one of a peculiar and of a very interesting character. I do not know where such a meeting has been held before. Certainly, for myself, I have never been present at such a meeting, and I think the Mayor has acted wisely, kindly, and in accordance with his character, and in accordance with the course he has taken during his year of office, in asking the school teachers here to-night, on a night when these rooms are being opened for the first time,

and thus to express his strong sense of the great importance in this community of Birmingham of the teachers in all your schools. Now, I am always sure to say something that some people do not approve when I have to speak to a great number of my fellow-countrymen. I shall be very careful to-night not to give any reasonable offence to any one; but I was going to say that I am not sure that it would have been possible for the Mayor to have sent out cards of invitation to five, or six, or seven hundred persons of any other class in Birmingham where he would have had so much that is important to the present and the future of this great community. Suppose he had brought 500 or so of the most skilful artisans—and no town in England, or perhaps in the world, could find 500 men superior to your best 500; but then these 500 work merely in the dead metal; they make something beautiful for ornament and valuable for use, but it is made and it is done with, and it is subject to no further change: it has no special influence upon the future. But if he had taken another class and he had sent for all the ministers of religion—ministers of the Established Church and of the Nonconformist bodies—not for the same number—there are not, probably, so many in the town—but if he had had so many, I venture to say that even they are not so important in a community like this as are the teachers whom I am now permitted to address. It has always been a subject, not of wonder, but of grief, that I have been compelled to believe that there is hardly any effort—so great effort—in any direction with so little result as the effort that is made by the ministers and teachers of religion. Ministers of religion have to speak mainly to, and teach, adults. They have a material that is not plastic and upon which they can make little impression! I think there is hardly anything more to be lamented, to feel more sorrowful about, than the knowledge that many men should work hard as ministers of religion and produce so little effect upon those among whom they minister. The teachers in your schools are in an entirely different position. They have a plastic material on which they

are able to impress their minds and their sentiments, and there is no doubt whatever that, though that plastic material may be moved and worked and impressed for evil as well as for good, seeing that, I hope, the great mass of the teaching in all our schools tends infinitely more to good than evil, we may expect that they may make an impression of lasting benefit upon the young minds with which they constantly come in contact. Now I must make another observation, and that is with regard to what we mean by education. It is not books alone. It is not what they call the "three r's." If you want a simple plain education, reading, writing and arithmetic, those things are very good, and for the bulk of men they are sufficient for their work in life. It is not even classics and mathematics, of which, in my day, when I was young, I knew nothing, and of which I have not acquired any knowledge since. I regard what are called classics—that is, the ancient languages of Greece and Rome—as rather luxuries than anything else. It is a great luxury to know anything that is good and innocent. It is a great luxury to know a great deal of the past, not that it makes you more powerful to do much, but it gives a great pleasure to the person who knows it, and I do not believe myself that there is anything in the way of wisdom which is to be attained in any of the books of the old languages which at this moment may not be equally attained in the books of our own literature. Therefore, I think a man may be as great a man, and as good a man, and as wise a man, knowing only his own language and the wisdom that is enshrined in it, as he knew all the Latin and Greek books that have ever been written. But now, I say there is another sort of education beyond that of books. I think Milton describes this sentiment in speaking of some ancient people or person; he speaks of him as deep-versed in books and shallow in himself; and there is no doubt that there are people who know almost everything that can be known in the library and yet can hardly make their way from one street to another. But what I want to say and I will not take up your time many mo-

ments, is, that I think, with regard to teachers, they have two entirely different branches of labour; they have that of instructing their pupils from books, and they have that of instructing them from their own conduct and their own manner. You want to teach a child—I must say it is better than book learning—you want to teach a child to be gentle; not the gentleness that is weakness, for there is a perfect gentleness which is combined with great force. You want humanity—humanity to animals is one point. If I were a teacher of a school, I would make it a very important part of my business to impress every boy and girl with the right of his or her being kind to all animals. Well, then, there is the quality of unselfishness. There is much selfishness in families. Selfishness in families is the cause of misery, and the cause of great injustice. Unselfishness and a love of justice, these are qualities which come, if you offer them, to the child's or the young person's mind with a special invitation; their very nature is such that they cannot receive them except with liking and approbation, and I have no doubt that it is possible for the teachers in the elementary schools in Birmingham during the next ten years or so, during which they will have two or three generations of children under their care—it is possible for them so to impress their minds on these subjects that twenty years hence it will be seen and felt over the whole of the town that there is an improvement in these respects in the general population. Now, these are things which I think it behoves the teachers of these schools to bear in mind. They cannot possibly have too high a sense of the responsibilities of their position and of their duties. The sense of that is growing over all the country. Since the School Act passed, the demand for teachers, men and women, has enormously increased. The consideration in which they are held is also very much enhanced, and you know, I hope and believe, that the remuneration which is given for teaching is probably twice as much as it used to be. I know, with respect to some schools that I have myself an intimate knowledge of, that, going

back to the time when I was a scholar myself, I believe that the masters of those schools at this moment are receiving three times the remuneration they were receiving fifty years ago. If that be so, they ought to be much better than they were then; they ought to occupy a much higher position than they occupied then, and feel that upon their course depended, to a large extent, the character of our population in future times, and not the character of our population as speaking of individual men and women, but the actual position and honour and greatness of our country. I agree with what the Mayor has said with regard to much we should expect to receive from the school system. There are difficulties. I heard it said the other night in a speech by a nobleman who occupies a very high position in the politics of the country that he thought the complaint that was made of extravagance by certain persons in Parliament had reference only to the extravagance of the school system. Well, I would have no extravagance in the school system if I could help it. Nothing that was done for ostentation, nothing that was done for show, but whatever can be done to make education real, to raise the character of our population, and exalt the sentiment of the people; whatsoever can be done by the expenditure of money and the devotion and the earnest effort of good men and good women, like the 500 or 600 I see before me, that I would do and have done. And although there may be those, and there are those, who think it proper, in public speeches, to slander the educational efforts of the people of Birmingham, I am quite sure it is done only by those who are not acquainted with what you are doing; and if they were acquainted with it as you are and as I am, to a certain extent, there would be no voice lifted here and hereafter against the School Board or the people of Birmingham for the course they have taken with regard to the education of their community. I only exhort you to go on, and consider there is nothing in this town that is more essential to the town's future prosperity and greatness than the good and sound education of your children, and every

one of you, as teachers, will feel that you have been a party to, you have been one of the leaders in, the greatest work that the population of Birmingham has yet undertaken to complete. I thank the Mayor very much for having permitted me to come here to-night, and I thank you very much for the kindness with which you have listened to the observations I have thought it right to make to you.

LORD GEORGE HAMILTON ON GRAMMAR.

Lord George Hamilton, M.P., distributed prizes in the Bolton school recently, and in the course of an address to the pupils he pointed out the necessity of adhering to the strict rules of grammar. He was bound to say that the House of Commons was no exception to the rule. The utterances which were there dignified by the name of speeches were very slovenly and very slatternly performances. There was a very remarkable contrast between the speaking of the young men and that of the old men, and the advantage was entirely in favour of the older generation. Anybody to be successful either as a student or as a teacher of science must be an accurate speaker, precise in the use of his words, and must know exactly the meaning of the words he used. It was by this means that a few great men such as Professor Huxley and Professor Tyndall had elevated lecturing into an art. No doubt science must have a vocabulary of its own, because words must be invented from time to time to express the results of experiments and discoveries which were unknown to our ancestors. Now it seemed to him a curious combination that art and science should be taught together in the same classes. A famous historian said,

that in the past, art had flourished most under Monarchies, and science under Republics. We believed that our present form of Constitution and Government combined the essence of both. Speaking from his observations at the Paris Exhibition, Lord George Hamilton said, that what surprised foreigners was the evidences of originality and imagination of Englishmen, who were supposed to be a very stupid and dull people. Amongst the special subjects which he thought required the attention of the rising generation was political economy. This nation must sooner or later, be called upon to settle the great economical problem, and for all those who wished to take part in controversies, it was necessary that they should have some knowledge of political economy. The controversy which must sooner or later arise was not, as some people put it, Protection against Free-trade. The question seemed to him to be this—How England can best obtain the foreign countries those advantages of Free-trade which she has herself so freely conceded to all nations who wished to trade with her. A knowledge of political economy would soften, and possibly terminate, some of the disastrous differences of opinion which take place between masters and men. In conclusion, his Lordship said the advantage enjoyed by the citizens of the town was not merely that they had in their primary schools the advantages of a sound education, but that they had in the secondary schools, and also in their great public library, the means afterwards improving their minds, and thus acquiring that knowledge and that information which would ultimately enable them more faithfully to perform their duties, both privately and publicly, as members of a great and influential community.—*English Education.*

PUBLIC SCHOOL DEPARTMENT.

Contributed to, and under the management of, Mr. S. McAllister, Headmaster of Ryerson School, Toronto.]

THE TEACHER IN THE SCHOOL ROOM.

THE teacher should never lose sight of the fact, during the five or six hours daily he is entrusted with the control of his scholars, that in accordance with the opinion stamped with the authority of ages, and by the sanction of the law, he is

IN THE PARENT'S PLACE.

The more he keeps this fact before him, the more likely is he to be successful. Of course there are varying circumstances which could never come within the range of a parent's experience, but pertain rather to the notions of one who administers for the good of a community. In all matters, however, that pertain to mental growth and habits of right-living, it will stand the teacher in good stead if he keeps his ideal position constantly before him.

BE PREPARED FOR EVERY LESSON.

It is a common fault with young teachers to think that when their professional studies are ended, they are thoroughly equipped for all the requirements of the school-room. They need only a few days' experience to find how mistaken is their opinion; and if they are wise, and withal conscientious, they will not be content to give the mere froth of their minds to their scholars, but will come to the school thoroughly prepared so to conduct all the work of the day that at its finish they may feel that in imparting knowledge, exercising control over, and directing the efforts of their scholars, they are masters in the highest sense. We know of no occupation among men that can impart a pleasanter feeling than this. The clergyman, for in-

stance, after the most earnest and successful ministration in the reading-desk and the pulpit is not at all sure that the seed he has endeavoured to sow has not fallen upon stony ground, or among thorns, which are too prevalent in every congregation, a fact which Mr. Bright not only admits, but accounts for in his own vivid way in the speech delivered at the Birmingham Teachers' Conversazione, which we insert elsewhere. One of the prime conditions of accomplishing any aim in the school room is

GOOD ORDER.

"Order is Heaven's first law" was the approving comment a wise inspector made as he observed a teacher who had just taken charge of a school spend the first half-hour in drilling his scholars to enter the school in a becoming manner. It is wise to begin well; and a teacher who does not personally superintend the orderly entrance of scholars into a school-room, as well as their passage out, need hardly complain if during school hours he does not secure that quietness so necessary to successful work. When once the scholars are placed in their seats, the great effort of the teacher, as an aid to good order, should be to

KEEP THEM EMPLOYED.

From the moment children enter the school-room, part of their training should be to have their whole time and attention devoted to the work required there. No matter how many classes a teacher has to manage, he should consider it a necessary test of his efficiency to keep them all at work. To do this with younger children of course requires their exercises to be varied, as is the case in the Kindergarten. But whatever variety there

be, let it be introduced by the teacher, so that not for a moment will the children feel that they are without his helping and directing hand.

Whenever children are found to relax attention from the lesson they are at, it must be taken as an indication that it is either wearisome, or is not being taught them in a manner to secure the sustained effort needed to master it. It will be wise then to introduce some exercise that will restore the teacher's control, such as the copy of a drawing on the blackboard, a simple song, a few gymnastic or calisthenic movements, or a vocal exercise in the simultaneous utterance of letters, syllables, or of words of difficult pronunciation. With older scholars, a short discussion of some public topic, particularly one that can, in even the remotest way, be connected with the lesson, will be found a profitable means of varying the work. Whatever relaxation is introduced, let the teacher be quite in earnest about it, and make it as much a part of the school routine as the most important lesson; children will then not be in danger of the notion that the school room is a place for play and not for work. Indeed, on this point we cannot be too strict. Every child should be indoctrinated with the notion that the school-room is as sacred to the serious work of education as the church is to religion.

Some teachers, in their zeal to secure quietness in assembling and dismissing classes, insist upon the children walking upon tip-toe. There is danger in distorting children's feet in this, and we would by no means recommend it. Scholars, by a little solicitude on the part of the teacher, can be induced, we will not say *made*—for even in trifles children should have the prompting to correct deportment from within, not from without—to walk with but little noise, and at the same time with ease. The only time tip-toe walking might be insisted on is when a class is at work, and the passage along the floor of any scholar might disturb it. One more point must be attended to in maintaining proper order in the conduct of classes, we mean

SPEAKING WITHOUT LEAVE.

A scholar should on no account be indulged in the utterance of whatever comes uppermost in his mind in connection with a lesson, or in giving expression to his feelings, even when he feels himself aggrieved, without first receiving permission. Teachers must remember they are shaping the characters of those under them, that they may pass through life with some comfort to themselves if not with success; and to do so they must learn to hold their tongues, and to control their feelings. Besides, unlicensed speaking, however pertinent it may be to what is going on, may prove a serious hindrance to the success of a lesson. A careful teacher can soon accustom scholars to await a sign, a look, or a word of permission before speaking, particularly if he is scrupulous to recognize the right or the expediency of speech on their part. These remarks particularly apply to those teachers who wisely permit and encourage their scholars to be not mere passive listeners, but active thinkers, in the progress of a lesson. We have hitherto dealt with good order as a means to an end, but it is an important end in itself; even if a child has learnt nothing but this at school it is an acquisition that will be a life-long benefit to himself as a member of a civilized community, the very existence of which depends upon the subordination of each individual will or desire to the good of the whole. Its importance will be enhanced in proportion as it is secured by self-control which is obedience to principles, rather than the control of the teacher, which is obedience to persons.

SIR ROWLAND HILL AS A SCHOOLMASTER.

The death of Sir Rowland Hill reminds us that we have lost one who first came into public notice by trying to carry out what was then considered the quixotic notion of managing a school without corporal punishment. Sir Rowland was happy in having a father who, from the earliest childhood of his family, was accustomed to reason and argue with

them upon all subjects that had a tendency to develop their intellects and extend their knowledge. In this respect he resembled the father of John Stuart Mill, although he proved himself but a poor bread-winner, for Rowland with his brothers, all of whom afterwards reached distinction, knew, as he expressed it, "the terrible inconvenience of being poor."

He gave them other bread—which is or should be, the great aim of all education to give—he taught them how to think. He had inspired them with an insatiable thirst for knowledge, with devoted loyalty to truth and honour, and with a self-denying regard to the feelings and opinions and rights of others. Rowland's schooling ended when he was twelve years old. He then became assistant to his father in a small school. At a time when other boys are thinking of leaving school, he, with his brother, began to reform defects which they observed in their father's management. He took upon himself the management of the accounts, and with such success that before long he had the satisfaction of paying his father's creditors in full. While his brother aimed at improving the methods of instruction, he attended to the discipline and organization, which he said was his *forte*. Long before Dr. Arnold's name was heard of in connection with Rugby, Rowland Hill had upset many of the received notions on education. He abolished corporal punishment in his school, without in the least diminishing respect for his authority. Knowing that he was hot-tempered and even passionate, he, to cure himself of this defect, publicly announced to his pupils that any one who saw him out of temper might, before the whole school, inform him of the fact. He strove to make the school, as far as possible, a self-governing one. Hence, says the authority from which we quote:—"An almost perfect democracy was established. Each boy had even the right of being tried by a jury of his school-fellows whenever a charge was brought against him by one of the masters. The whole school elected what would be called its sixth form boys—guardians as they were called in the school that the Hills had established at Hazelwood, near Birmingham. These guardians

formed a kind of parliament, which, with the help of the masters, who composed an upper house, ruled the school. They met often to deliberate, and their sittings were drawn out over many an hour by the eagerness of the young debaters."

Attention was drawn to the school by a book written by his brother and coadjutor, Matthew. It was favourably noticed by De Quincey, and so highly thought of by Bentham, that he declared that after reading it he had thrown aside all he himself had written on education. The school attracted the notice of such leading minds as Wilberforce, Brougham, Grote, Joseph Hume, and Miss Edgeworth, and Rowland used to boast that he had the largest school in Warwickshire, filled by boys that could be almost made to govern themselves through a high sense of duty and not from brutal fear. It must be remembered that this was before Arnold had taken hold of Rugby. It is nevertheless interesting to know that the great qualities which made the inventor of the penny post one of the great benefactors of this century were first brought into wholesome exercise in the practice of improved methods to educate the young. It would be interesting to read the constitution and code of laws of his school. They filled a volume of upwards of one hundred pages. Doubtless we could find many things to amuse as well as instruct us, for Rowland was a hot-headed enthusiast, and in his old age he was known to smile at some of the crude theories he tried to carry out in his school, and was heard to express a doubt as to whether he would send children of his own to such an institution.

While he kept charge of the school he actively employed himself with public questions, and thus became acquainted with most of the leading men of the country. At the age of thirty-seven the desire for employment that would exercise less of a strain upon his nervous system impelled him to give up his school, and to devote his entire attention to public questions. He almost at once started the agitation for a reform of the postal system, and henceforth his career became the property of the nation.

At the late Provincial Convention, Mr. David Johnston, of Cobourg, the first Vice-President, and Chairman of the Public School Section, hinted at the probability of his early retirement from the active duties of his profession, owing to increasing years. We find by a recent file of the *Cobourg Sentinel* that this has actually taken place. We cannot allow the occasion to pass without expressing our regret at the loss to the profession, of a public-spirited, patriotic, and earnest-minded teacher.

We have more than once had scholars whom Mr. Johnston had trained, and their mental and moral calibre gave evidence of the highest style of the teacher's handiwork.

Mr. Johnston's retirement will be a loss not only to the town of Cobourg, but to the Province. He has shewn an untiring sympathy with all that concerned the advancement of education and of the profession. He was a member of one of the first County Associations held in the province, and for many years past has been a regular attendant at the Provincial Conventions, in which he always took a prominent part, not as a time-server nor in the spirit of self-aggrandizement, but as one who regarded the interests of education and the independence of the teacher as too sacred to be bartered for either power or pelf. We can only wish that in his retirement he may enjoy the *otium cum dignitate* which is the proper

reward of his laborious and well-spent life.

THE *London Times*, in a thoughtful article on the School Board elections that occur on the 27th of November, shews a thorough appreciation of what the London School Board has done, and points out that the election cry of "Efficiency with Economy" is as capable of being used for the defence as for the attack of the Board. The providing of education for more than a quarter of a million of children, who would otherwise have been left uncared for, sinks the question as to whether it might not have been done at a cheaper rate into absolute insignificance. More education means less juvenile crime; and one form of crime the Board has stamped out. There is no longer the old supply of pick-pockets, trained in the manner of *Oliver Twist*. The reformatory and industrial school render this impossible by turning out seventy to eighty per cent. of their inmates to earn an honest livelihood.

By latest advices we find that out of the fifty members elected on the 27th November, nine are women. Amongst these we shall be disappointed if we do not find such names as Mrs. Westlake, Miss Muller, and Miss Richardson, who have taken an active and enlightened part in School Board work in London, either as members of the Board, as in Mrs. Westlake's case, or as managers of schools, as in the case of the other ladies.

Dr. H. Rink, the author of a recent work on the Interior of Greenland, estimates the area of that inhospitable land at 512,000 square miles. The surface is wholly covered with ice, and is constantly engaged in the formation of material for icebergs, which probably take one hundred years to travel to the sea. In one of the ice-fjords the portion of glacier annually pushed in and set afloat as ice-bergs has been calculated to constitute a cubical body 900 feet high, two miles long, and two miles broad. The whole system of river drainage is represented a continuous sheet of ice.

THE gross cost per annum for pupils in the London Board Schools is £2 10s. 11½d. sterling, or \$12.40 each.

To enforce the compulsory clause of the English Education Act, the London School Board employs 208 visitors, over whom are placed eleven superintendents, whose duty it is to bring truants, and those children neglected or put to work before the legal age by their parents, within the influence of school training. The total cost of compulsion for London amounts to the good round sum of \$141,020.

IN Russia there were, in 1865, but 8,000 elementary Schools with 280,000 pupils. Now there are 24,000 of the former filled by 1,000,000 of the latter; but this is far from meeting the requirements of a country containing 12,000,000 children between the ages of seven and thirteen.

HIGH SCHOOL DEPARTMENT.

MILITARY DRILL IN HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

Some months ago the Dominion Government devised a scheme for the introduction of Military Drill into Schools and Colleges, of which due notice and explanation have been supplied to those interested through both the Ontario Minister of Education and the Department of Militia and Defence. The object of the Regulations is a good one ; but like every other scheme set on foot by those who have not a practical knowledge of the condition of our schools, it is unsuitable to the condition of Ontario, whatever adaptability it may have to that of the other Provinces. So far as we are aware, there have been no applications under this Order : the Hon. Mr. Masson will have found out by this time that to be successful the Regulations will have to be completely remodelled.

The Dominion Government proposes to supply gratuitously to those Schools or Colleges which can raise and maintain a company of 40 members, (1) the services of a drill instructor for one month, during which period there would be, we suppose, four or five hours' drill a day, and (2) rifles and accoutrements, and suitable books for Military Instructional purposes.

School Boards are in turn expected (1) to hold themselves responsible for the safe keeping of the arms and accoutrements, and (2) to see that the members of their company keep themselves supplied with uniform clothing of a pattern and colour to be approved by the Government.

Such, in brief, is an analysis of the Regulations. The practical objections to the scheme from an Ontario High School point of view, are as follows :—

It would seriously interfere with the regular school routine. Classes would be broken up, owing to the necessity for some of the members being present at the daily drills, and it would be literally impossible to maintain any kind of organization. A later Regulation allows the annual drill to be put in at two separate periods, but this would only slightly improve matters. It cannot surely be the intention of the Government to have the drill instructor perform his duties after the ordinary school hours ; and in these days when High School masters can hardly overtake the work now expected from them, it is extremely unlikely that they will sanction, even for a few weeks, such an interruption to the regular course of study. No doubt, from one point of view, such an interruption might be productive of good results to the pupils themselves : we are painfully aware that they are often too much hurried, and that the break in the usual routine of mental discipline would have manifold advantages, but the exigencies of the Master's position under our present system of Departmental Examinations are now such that in the race for prestige, and in some cases in the struggle for existence, there are few who would care to handicap themselves in this way. It is, further, very questionable whether even a month's steady drill is the maximum a well devised scheme should aim at. From the teacher's standpoint, drill should have an educative influence, and to have much value as such, it should form part of the studies in the school programme. This it does in several of our High Schools and Collegiate Institutes, in some of which it is taught by the regular masters themselves, who, for reasons which will be obvious to all teachers, form the most efficient class of instructors. The Gov-

ernment scheme contemplates the appointment of Drill-Sergeants who are to spend a month every year at those schools which organize companies under the Regulations. It is certainly too much to expect School Boards which have already provided drill instructors to discard them, when, except the possession of arms and accoutrements, the new scheme would confer no benefit on them, but on the contrary would put them to serious loss and inconvenience. This provision in the Regulations might suit localities unable to procure a competent instructor, but when we consider that, to obtain the arms, etc., there must be at least 40 members in the company, there seem to be few places able to come under the operation of the Order which might not also provide suitable Drill-Sergeants.

If there were nothing else to shipwreck the scheme, the clause which makes it imperative for members of the companies to possess uniform clothing, would be enough to do it. The uniforms would have to be supplied by the members themselves, or by the School Boards. A sufficient number of the former might be found in a few cities and towns rich enough to do so, but the latter feel the ordinary expenses heavy enough without launching into what the much suffering rate-payer would certainly regard as an unwarranted expenditure. This part of the scheme should be dropped; or, better, the Department itself should supply cadet companies with clothing as they now do the volunteers. The advantages gained to the country at large would far more than counterbalance the expense. Whatever benefits would result from the success of this movement would be shared in by the Dominion, and it is therefore only proper that the cost should be defrayed out of the public exchequer. The Instructors in our High Schools, who have already proved themselves competent, should be confirmed in their places, and the students under their charge subjected to such inspection as might be deemed advisable. Places unable to provide suitable instructors, might, if desired, be supplied with them by the Militia Department.

Some ten or twelve years ago a still better plan was in existence, though for a variety of reasons it was then not so successful as we believe it would now prove. The sum of \$50 a year was granted to those schools which maintained at least 20 pupils well drilled under a competent instructor. A grant of a small sum like this, or indeed, a proper supply of arms and accoutrements and uniforms, would cause the establishment of many a school company throughout the Province, and in the end turn out to be more useful, and less expensive, than the present well-meant but impracticable scheme.

As every one is impressed with the necessity for some such provision as the Hon. Mr. Masson aims at, we are sure he will have the support of every Canadian in the carrying out of any system of military instruction suited to our condition and requirements.

HIGH SCHOOL REGISTERS AND BLANK FORMS, ETC.

A good deal of unnecessary trouble is often caused to masters by the regulations of the Department in reference to registers.

These are at present supplied to High Schools by the Public School inspectors. Is there any good reason why they should not be sent direct to the High School Board or the High School master? Delays of weeks have sometimes been caused by adherence to this unnecessary regulation. Let us have a little common sense infused into the Depository management. The less the friction, the pleasanter will it be for every one.

In the matter of blank forms for half-yearly returns of attendance, the same economy in little things, for which the Department has been distinguishing itself of late, also crops out. An application for enough forms to contain the attendance of a large school has been met with a refusal and the advice to rule forms similar to the one sent. The matter is certainly of no great moment, but it is a mode of saving the public funds which the public can afford to dispense with.

After his half-year's work, it is task enough for the master to have to spend, in some cases, hours over his return, without being forced to make out the form which is to contain it. Let each school, each half-year, have enough and to spare.

HIGH SCHOOL INSPECTION.

It is impossible to avoid concluding, that as at present conducted, the inspection of our High Schools gives satisfaction neither to the profession nor to the public. In official circles much importance is attached to this mode of testing the results of a master's work, and to the influence for good of such supervision. But the opinion is confined mainly to departmental and other officials; it is by no means admitted by others interested in the question. So long as no money was allotted on the results of inspectional visits, little interest was taken; but the state of matters is now different, and it is only right that the wishes of the intelligent body of men, whose abilities and labours are thus appraised, should have every reasonable guarantee that the results obtained are at any rate approximately correct. In connection with this subject, we desire to submit the following statements, for the consideration of the Minister of Education:—

(1.) At the last session of the Ontario Parliament, many members expressed the opinion that the High School Inspectors do not devote sufficient time to their proper duties, and that in many localities their work is inefficiently performed.

(2.) The High School masters, in annual convention, *unanimously* passed the following resolutions:—

(a.) That the amount payable on the results of inspection should be determined at the end of each year and a half, on a conjunct report of the three inspectors, it being understood that each inspector would devote himself to the examination of those subjects on which he is admittedly competent to form an opinion.

(b.) That in view of the fact that the

grading of the High Schools, and the distribution of a large portion of the legislative grant, are decided according to the results of inspection, it is desirable that the High School inspectors should be enabled to devote a greater amount of time to the work of inspection at their semi-annual visits.

(3.) That by their own admissions the inspectors are not competent to examine in some of the subjects on the High School programme, notably, drawing, music, and drill; and that though their decisions in some departments of study are accepted without demur so far as their scholastic ability is concerned, very grave doubts are felt by those interested when *each* of the inspectors undertakes to appraise the "quantity and quality" of the work done in the Upper Schools.

(4.) That the half-yearly apportionment on the results of inspection is so exceedingly minute in its details, that it is calculated to produce the apparently erroneous impression that the condition of the schools has been as minutely investigated. To illustrate this, we refer to the apportionment for last half-year, and we find the following:—

In (a.) "School accommodations," etc., there are *fifteen* grades, represented by the following sums:—\$20, \$18, \$17, \$15, \$14, \$13, \$12, \$11, \$9, \$7, \$6, \$5, \$4, \$3, and \$0.

In (b.) "Number of masters employed," etc., there are *seventeen* grades, represented by the following sums:—\$22, \$18, \$16, \$15, \$14, \$13, \$12, \$11, \$10, \$9, \$8, \$7, \$6, \$5, \$4, \$3, and \$0.

In (c.) "Character of work done in the Lower Schools," there are *seventeen* grades, represented by the following sums:—\$18, \$17.50, \$17, \$16, \$15, \$14, \$13, \$12, \$11, \$10, \$9, \$8, \$7.50, \$7, \$6, \$4, and \$3.

In (d.) "Quantity and quality of Upper School work," etc., there are *twenty-five* grades, represented by the following sums:—\$51, \$48, \$44, \$42, \$37, \$36, \$30, \$28, \$24, \$23, \$19, \$18, \$16, \$15, \$12, \$10, \$9, \$8, \$7, \$6, \$5, \$4, \$3, \$2, and \$0.

In (e.) "Discipline," etc., there are *nine* grades, represented by the following sums:—

\$6, \$5.50, \$5, \$4.50, \$4, \$3.50, \$3, \$2, and \$0.

In *Music, Drawing, and Drill*, there are thirteen grades, represented by the following sums:—\$18, \$15, \$14, \$12, \$9, \$8, \$7, \$6, \$5, \$4, \$3, \$2, and \$0.

In connection with the above statement it is necessary to bear in mind that there are only 104 High Schools and Collegiate Institutes, and that the amounts apportioned to each school vary from year to year, so that apparently a fresh valuation is made at each inspectional visit.

(5.) An alteration in the grant to each school should indicate an alteration in the character of the teaching. By those Trustee

Boards that pay any attention to the eccentricities of this financial thermometer it is so regarded, and masters who can conceive of no reason for a change in the apportionment have before this suffered needless and unjustifiable humiliation.

Under these circumstances two questions suggest themselves:—

(1.) Is it in the interests of education to continue a system that attempts to make so minute discriminations? and (2.) Are the means at present employed in arriving at these conclusions satisfactory?

To both of these the High School masters give an emphatic negative.

THE teacher whose mind shall not become a desert must drink daily from the fountain of his calling. Forty eager pupils cannot quench their thirst for knowledge by looking at an empty vessel.

THE early years of life have the principal influence in moulding character. I believe, in truth, that a person can so mould the child by the time he is ten years old, that no future training can dispossess his mind of the principles inculcated.

THE teacher must know how to enter into the hidden recesses of the youthful mind, and from that point work outward and upward. The pupil is like a treasure in the sea, and the teacher like a diver who goes to the bottom to bring it up. If you do not descend and ascertain first exactly where the child's mind is, you will not bring him up where you are. The descent of the teacher is essential to the ascent of the pupil.

A BIT OF SARCASM.—The Booth Board School has closed its austere portals against a depraved young hussy of eight, who is not ashamed to hang ornamental beads in her ears. The Board holds that it is flying in the face of Providence, as girls have ears for no other end than being boxed. This is clearly the beginning of school-board sumptuary laws, under which the ribbons of female pupils should be replaced by string or untanned leather; their hair should be uniformly cut to within a quarter-of-an-inch of their heads; and it would be well if their teeth could be dyed a nice, modest color—say drab, or dirty blue. The stuffs recommended by the department are, for girls a good strong sackcloth, and for boys a fine tarpaulin.—*Funny Folks (Eng).*

AT an examination in Geography in one of our Public Schools, the scholars were required to state the products of various countries, and one youth in despair answered as follows:—

England.....Cotton, coal.
Russia.....Lost track of them.
China.....Not under my observation.
Arabia.....They are cast down.
France.....Knew them once, but know them no more.
Switzerland....Gone forever.

THE following are among the rules laid down by a contemporary for the conduct of Teachers' Meetings:—

1. Select a place of meeting most convenient and attractive for the great majority of those concerned.
2. Hire a good hall.
3. Make a good programme.
4. Make the speakers stick to their allotted time.
5. Allow time for fair discussion so long as the addresses are brief and pertinent.
6. Conduct the work by the clock. Commence at the appointed time if only one is present. The audience waited for does not demand so much attention as the audience present.

IT is one of the best evidences of a progressive spirit in the teacher when a subscription is made for some good educational journal, and readers of such are amongst the most public-spirited and intelligent of the profession.—*Exchange.*

CONTRIBUTORS' DEPARTMENT.

THE "INTERMEDIATE" AND THE
DECAPITATION OF HEAD MAS-
TERS.

*To the Editor of the Canada Educational
Monthly:*

SIR,—I have read with pleasure your remarks of last month on the shameful action of the Lindsay School Board, in dismissing the Principal of the High School, in consequence of the failure of his pupils to pass the last Intermediate Examination,—a circumstance for which the Board was undoubtedly more to blame than Mr. Dobson.

I shall look with interest for your further remarks on the case, for, if the security of a Head Master's position is to be made contingent upon the results of the "Intermediate," or of any Departmental Examination, irrespective of what School Boards may do to make efficient the teaching staff of the schools, it will be a serious matter to every one of us in the profession. What has befallen Mr. Dobson, and Mr. Miller, of the Walkerton High School—whose case I should also like to see you take up—may be the experience of any Head Master, if the passing of the "Intermediate" is to continue to be made the gauge of success in a teacher's work without reference to the other substantial results of his teaching, and irrespective of the aid his Trustees may afford him in enabling him to meet the tests of Departmental Examiners. Surely, however, the injustice that has been lately done at Walkerton and Lindsay will not be repeated elsewhere.

Your examination into the circumstances of these cases will be of good service to the profession, and I doubt not will do much to prevent the repetition of injustice and wrong. Thank heaven, however, we are going to have but one "Intermediate" a year!

Gratefully acknowledging the independence and ability with which THE MONTHLY is conducted, and wishing it every success,

I am, Sir,

Yours very truly,

A SUBSCRIBER.

—Our Correspondent, in the above letter, skirts the edge of a matter that might possibly be made the subject of some consideration and public discussion at the present moment. Particularly opportune, it occurs to us, would be its consideration just now, while attention is being directed to the wrongs of the two Head Masters, who have been relieved from their duties through failure, under exceptional circumstances, to pass their pupils through the recent Intermediate Examination. We refer to the words, in our correspondent's letter, "if the passing of the Intermediate is to continue to be made the gauge of success in a teacher's work, *without reference to the other substantial results of his teaching.*" There is no doubt that in the minds of most School Trustees the result of the "Intermediate" is the sole indication of success in teaching, and is the only criterion, in their often limited apprehension, of whatever progress has been made in the school work for the year. To this short-sighted view of the matter, Mr. Dobson and Mr. Miller have undoubtedly been sacrificed. It would seem, therefore, to be of moment to consider what other views of the subject can be presented so that Trustees may be made to see the value of the teacher's *all-round* work—rather than that of any special and forcing period—and to have their minds sobered to a modest judgment upon the merits of work tested solely by examinations. The High School grant being based on the result of an examination, of course, seriously warps the minds

of Trustees and predisposes them to take a prejudiced view of other tests of school progress than that of Departmental Examinations, upon which the grant depends. But this cannot be said to be fair to the teacher, and it becomes positively immoral when the means of enabling the school successfully to pass these tests are withheld by the false economy that too often governs School Boards in the administration of their trusts. As a matter of fact, it is well known that the tests of an examination day are often delusive and unreliable. Experience has again and again proved this. The best results of well-directed instruction, and the earnest toil and energy of the teacher, rarely display themselves to an examiner's eye, and indeed, often remain concealed during the years of school. The same may be said of the moulding effects on character of school training and discipline, which are seldom seen and never appraised in an examination paper. Even in book instruction, the results of honest teaching and of a well-digested course of study, do not always reveal themselves. Constitutional timidity, or a too excitable temperament in the pupil, often hinder him from doing justice to himself. Moreover, the system of inspection is not faultless, nor is the Inspector himself always in that judicial frame of mind that best fits him to try the issues upon which so much depends. In the case of outlying schools, special stress may be pardoned on this point, as, however robust may be the Inspector, and however equable his temper, the necessity of economizing time, and the remembrance of even a *mauvais quart d'heure* on the road, are enough to upset his equanimity and darken his mood. We do not of course argue for any laxity in inspectorial work, nor for any reduction of the standard of education to which the schools have now been happily raised. On the contrary, we desire to see maintained a rigid and competent inspection, and a curriculum as scholarly and high-class as it is practicable to insist upon. But what we contend for is a more enlightened and considerate appraisement, by Trustees particularly, of the teachers'

every-day work, and not that that shall be solely tested by the results of a chance and solitary examination, subject too often to the accident of the moment, and which the teacher frequently enters upon at a disadvantage for which his School Board alone is responsible. The work required now to be done by the High School Master is of so varied and complex a character, and exacts so much of labour and attention in its performance, that School Boards can hardly be too generous in dealing with their Principals, and in supplying a staff of competent, well-paid assistants as will enable them to do justice to themselves and ensure the character and efficiency of their work. This at least we might expect at the hands of Trustees, and it would seem to be greatly desiderated at the present moment, viz.:—that before they undertake to contrast one school with another, and to hold their Head Master responsible for any short-comings in their own special trust, they should justly weigh the circumstances that stint or withhold success from his labours, and be sure that his failure is not the result of the short-sighted and illiberal administration of his School Board.—ED. C. E. M.

THE TEACHERS' INSTITUTES
GRANT AND DEPARTMENTAL
"STAR" LECTURERS.

To the Editor of the Canada Educational Monthly:

SIR,—Can you tell me whether any of the \$50 annual grant to Teachers' Institutes finds its way into the pockets of the Central Committee? I have been informed that some of the members receive pay for their services at Conventions in addition to their travelling expenses. Is this so, or is it, as I hope, a slander on the good name of these public-spirited gentlemen? I had always understood that the only reward expected was the thanks of the teachers, and I was surprised when informed that dollars and cents form, in some cases, an important ingredient in the composition of the thanks.

Yours respectfully,

ENQUIRER.

October 25th.

—We have no personal knowledge of the matter to which our Correspondent refers, though the statement has reached us, from two independent sources, that a portion of the Government grant to an Institute was in a late instance made use of to fee a lecturer for his services—beyond the sum that could justly be claimed for legitimate travelling expenses. Under ordinary circumstances, a charge for a lecturer's expenses might be liberally construed, and the treasurer's conscience need not be stretched to honour it. But we are under the impression that these Institute Funds are not available to pay an honorarium to a lecturer. If they are, however, there is no occasion for concealing to whom they are paid. No one, we should think, would trade on professional disinterestedness while receiving a *quid pro quo* for his services.—ED. C. E. M.

THE MONTHLY AND ITS SUPPORTERS.

To the Editor of the Canada Educational Monthly:

SIR,—Having heard that the MONTHLY is published in the interest of a certain section of the teaching profession and of certain publishing houses, I would like to know whereon rests the evidence that this is the case. As a subscriber to the journal, I have certainly observed that some of those in an influential position keep aloof from it, or do not write over their own names; and now that the journal has been placed upon a new basis, I think it would be a pity if any real or apparent objections of this kind could be made against the publication. We need a journal in which the interests of every section of the profession will be attended to fully and impartially.

Yours, etc.,
TEACHER.

TORONTO, Nov. 4th, 1879.

—Emphatically we answer our correspondent in the negative! THE MONTHLY has

never been, and is not now, published in any other interest than that of the profession, and the profession as a whole. Neither has it been, nor is it now, issued in the interest of any one publishing house, or of any number of them. The initial prospectus of the Magazine announced that the publication would be issued as an independent organ of the profession, and in the spirit and letter of that promise it has appeared and been conducted. To ensure its maintenance in this character, its proprietorship has recently been assumed by a Joint Stock Company composed almost wholly of members of the teaching profession, purposely drawn from its various branches, to make it more truly a representative publication. That the Magazine from its start has had the support of those active in educational work, and imbued with a fervid professional *esprit*, has been due to the fact that its aims were high and its character independent. But while having this special support, it has not been exclusive. It invited and invites aid from all quarters; and the spirit of its management has been to do justice to all. Those "in an influential position" whom our correspondent notices as having kept aloof from it, have doubtless done so for good reasons. Possibly other and more cherished interests claim their labours: they do not, at any rate, conceal their personality in this journal. Their co-operation, however, was not unsolicited, though their courtesy was as scant as their aid. But with the attitude of a section of the profession, the Magazine has nothing to do. Its interests are of a more extended and embracing character, which every issue happily augments. A new year gives promise of wider fields to occupy, and of larger opportunities for work. Misrepresentation may still follow us, but there will be much to compensate. What we have already accomplished bears its own testimony; what we may yet do, the aid of our friends will make possible.

EDITOR C. E. M.

CONTEMPORARY LITERATURE.

MANUALS FOR TEACHERS. No. 4, On Discipline. No. 5, On Class Teaching. Philadelphia: Eldredge & Brother.

The Manual on "Discipline" displays the same admirable characteristics as the three previous volumes already noticed in these pages; and is evidently the work of one who knows whereof he speaks.

We know of no better text-book on the subject to put into the hands of a student-in-training for careful and systematic study.

The writer views the weaknesses of both pupils and teachers with the sympathetic mind of one who has "felt the same." He does not fall into the too common error of writers on Education, of setting up an impossible standard, but lays down rules which every teacher worthy of the name, by exercising proper care, may follow. For example, in connection with the enforcing of obedience, he offers the following "hints:"

1. Make up your mind what rules it is desirable to follow, and abide by them.

2. Let your most important rules be reduced to writing.

3. Have no rules which you cannot enforce.

4. After giving an order see that it is obeyed.

5. Do not use language which implies that your pupils will desire to violate the order you give.

6. Give your commands in a firm tone, without shouting or repetition.

7. Have a definite way of doing everything.

8. Exercise special vigilance at the change of lessons.

9. Always have something definite for your class to do.

10. If necessary explain the reason for your demands.

In enumerating the characteristics of good discipline, he says, it should be *regular, natural, unobtrusive, kind and just*, and he might have added *firm*.

In his chapter on Motives, he says, "it is often worth while to explain the object of a rule, and to show its practical utility."

It is better still to make the rule at a time when its necessity or utility is obvious to the class.

He explains that punishment has a two-fold object, (1) the reformation of the offender; (2) the deterring of others from the commission of the offence, but he omits to show how far the latter object should be kept in view. It should have no recognition in regulating the extent of the punishment; because it would be very unjust to impose punishment upon a culprit to correct faults that others, for whose conduct he is not responsible, may in the future commit; nor can it always decide the nature of the punishment, for that too often has to be regulated by the character of the scholar. Our author does not agree with many others in regard to Impositions; he considers them very suitable for such offences as truancy, lateness, inattention, and neglect of home lessons, remarking that it is only reasonable that the time a scholar, in these offences, takes from work should be compensated for by time taken from play. In further confirmation of this view, he adds this consideration, that giving impositions for these offences is a means of disciplining the mind of the pupil to a proper estimate of the value of time.

With much of this we agree, and we think he is right, too, in recommending the exercise of a little good humoured ridicule to lessen the vanity and conceit of some scholars, and the tendency to magnify trivial grievances of others.

We will conclude with a quotation from the chapter on "Habit," which will afford a fair specimen of what this valuable little volume contains. "Authority is to be used only so long as is necessary to give reason time to acquire the power of ruling the conduct. Hence, as impulse comes under subjection, the young should enjoy more and more freedom. They should no longer be directed by precepts in every minute detail of conduct, but should be left to apply principles for themselves. They should be suffered to encounter temptations such as they have hitherto been exempt from, and should in this way be gradually disciplined against that time when they will leave home to become their own masters."

We have not to read far in the Manual on "Class Teaching" before we find unmistakable indications that it is the production of an intellect of a different order from that which gave us the previous Manuals. The book contains much that is worth knowing, but it is put before the reader in such a jerky style that he must bolt it as a restless Yankee does his food, and with as little benefit. For example, when the writer wishes to tell us that the advantages of class instruction are a saving of time to the teacher, a benefit to the pupils by begetting sympathy, emulation and competition, and by making the knowledge of some the property of the whole, he does so thus:—"The advantages of class instruction are manifold. The class saves time. Twenty may be instructed in the same time as would be required for one. It thus sets the teacher free for other work. But it has greater advantages. Look at its forces. These are sympathy, emulation and competition. The brighter ones are there to stimulate the dull. The special knowledge of some is made a common possession."

Notwithstanding the spasmodic character of the author's style, a great deal that is valuable may be learned by a careful study of his little book. Take, for instance, the following remarks on Teaching:—"To teach is to enable the learner to do. It may be to work with the mind, as in arithmetic and grammar; or, with the hands, as in penman-

ship and drawing; or, with the voice and ear, as in reading and singing. Its aim is always to give power and skill. . . . The development of the pupils' faculties and their discipline, that is, the placing them completely under his control, are the prime aims in teaching." The last chapter on Class Management is perhaps the most valuable one in the book, and will well repay studious perusal on the part of even the most experienced teacher.

These volumes complete this series of Manuals, and the National Society in England, as well as the Messrs. Eldredge in America, have conferred a special benefit upon teachers by their publication.

HARPER'S LATIN DICTIONARY, founded on the translation of Freund's Latin-German Lexicon, edited by E. A. Andrews, LL.D. Revised, enlarged, and in great part re-written by Charlton T. Lewis, Ph. D., and Charles Short, LL.D. New York: Harper Brothers; Toronto: Willing & Williamson; Oxford: At the Clarendon Press, 1879.

This imposing volume, which we had barely time to notice in our last issue, and which we confidently recommended to students and scholars as a great store-house of criticism and research, has, on further perusal, amply justified that opinion, embodying, as it does, the results of the latest and ripest scholarship in the literature and language of the Latin tongue. It is an exceedingly opportune work. The translation of Dr. Freund's great Latin-German Lexicon, edited by the late E. A. Andrews, LL.D., and published in 1850, a work in extensive use throughout England and America, has, in some departments of lexicography, been for more than fifteen years almost obsolete.

The Classical Professor, the Classical Master in the High Schools and Collegiate Institutes, the Honour-man in Classics at College, and the critical student have all felt the need of some work embracing in moderate compass the results of recent minute research in manuscript authorities, of profounder inquiry into the origin and history of Latin words, and of the nice discrimination

of meaning which renewed attention to the text has established, as well as of the disentanglement of intricacies effected by recent writers on Latin syntax.

The work before us is the result of a series of earnest and conscientious efforts by the publishers to meet this need. A sufficient guarantee of the merit of these efforts is the imprimatur of the Syndicate of the Clarendon Press at Oxford on the title page.

From the publishers' preface we learn that the revision of the original work was begun fifteen years ago by the author, Dr. Freund, who carefully revised it and re-wrote a few of the less satisfactory articles, and supplied about two thousand additions. The sheets were then placed in the hands of the well known Prof. Drisler, the late Dr. Anthon's colleague in Columbia College, New York, but that eminent scholar advised the entire reconstruction of the work. Owing to Prof. Drisler's numerous engagements, the work of re-editing passed into the hands of Prof. Charles Short, of Columbia College, and Charlton T. Lewis, Ph.D., who have brought it to its present magnificent completion. The publishers make grateful reference to the valuable help received from another scholar, Gustavus Fischer, LL.D., of New Brunswick, N.J., by whose learning and research many articles have received a fulness and completeness of treatment hardly attempted before in a Latin Lexicon. They also acknowledge their obligations to Professor Lane, of Harvard College, for many suggestions and corrections, the fruit of his ripe scholarship, and to Mr. Geo. W. Colford, the proof-reader, for his patient skill in successfully accomplishing what must have been a singularly tedious and irksome task.

The work is now published in mammoth octavo form and, as before, in triple-columned page, the word *sub judice*, as well as chapter-heading, being distinguished from the rest of the article by different type, the matter being arranged under different heads, as first planned by Freund, in the original work, and since adopted in whole or part by nearly all lexicographers.

A careful inquiry into the various elements

of Latin-English lexicography, such as the grammatical, the etymological, the exegetical, the synonymous, the chronological, the rhetorical, and the statistical, will show, we think, a very decided advance upon all previous efforts to produce a volume at once convenient and complete.

Into an examination of these various features we do not propose to enter, but shall content ourselves with a few cursory observations upon some topics that seem to call for notice. There is a very large amount of new material. Some idea may be given of this by stating that the old edition numbered 1663 pages, the new 2019, the page being larger in the latter, and that the discussion of the letter A occupies three-fourths of a column in the old, and four entire columns in the new !* Nothing, we think, could more clearly show the advance that has of late years been made in matters relating to verbal criticism, than a comparison of the two editions on the word *abs*.

While following out in the main the plan of treatment adopted by Freund, the present editors have felt warranted by the demands of the age to depart from his views on the treatment of etymology in a lexicon,* and to advance boldly into the fields of Comparative Philology to garner there the choicest sheaves of that inviting science.

We welcome the presentation of this new material. A generation that has sat at the feet of Max Muller, or for whose youth a Primer on Philology has been prepared, cannot be content with anything less, we mean no jest, than the root of the whole matter. The school-boy who has been taught to notice crude forms and roots, as given in Dr. White's admirable Grammar-School Texts, no less than the quondam student of Donaldson's *Varronianus*, will be able to prosecute his investigations along the line indicated by Dr. White, and not run the risk of stumbling *sub luce maligna* of the older Lexicon. Compare, for instance, the copious treatment of the word *gramen* in the new edition with that in the old, or in Anthon, or White, or Smith, or any other of the commo

*See page xii.

Dictionaries, not to mention Facciolatti's wilderness.

Another feature of great importance is the thorough revision of the orthography. Briefly to state the change: The editors have almost entirely adopted Brambach's spelling, as given in his Latin Orthography. We may now confidently look for some uniform action by future editors as to the spelling of words in Latin Classics for use in schools. In a very short time, when a third edition of Kennedy's Virgil is called for, we shall not find that admirable scholar fearing to wound the susceptibilities of his practised reader writing Vergil in his text and Virgil on the cover.

The occasional errors in quantity that marred the correctness of the old edition have been carefully sought out and removed. We have known the incorrect marking of *tamen* in the old edition spoil a line of otherwise good verse. But why (says the reader, did) not (the stupid) use a Gradus? Simply because a Gradus does not discriminate between the various meanings of a Latin word of different epochs, and ought not to be used in writing verse. It is in this discrimination that the Lexicon before us will take its place above all others; and, for this reason, we would advise all students ambitious of cultivating a pure style in Latin, to study the word as treated in this work.

There are, of course, omissions. A brief note on the quantity of *fidus* in compounds, and a longer note on *pro*, in composition, would have greatly enhanced the value of these articles. The variations of quantity in *fieri* and *statum* are passed unnoticed. But these are very trifling omissions, and in no degree detract from the general merit of the work.

No department of lexicographical investigation or elucidation seems to have been neglected. The mere student of English literature, in quest of the exact meaning of his author, will find opportune help in discovering the meaning of difficult phrases in such English classics as *Paradise Lost* and *The Faery Queen*. See the elegant reference to Milton P. L., iii. 7, *sub voce, audio*.

It would be unpardonable to pass without notice the copious references to many authors scarcely mentioned in the former edition, but whose writings have been diligently collated for the present work. Especially is this remark true of the Vulgate and the Christian Fathers. With this edition the student of Patristic literature may read his favourite Father as comfortably as he would the Ciceronian Erasmus.

We notice in the new edition the excision of the specimens of the oldest monuments of the Latin language, and the list of words in Italian and French derived from the Latin. The latter appendix being a mere list of words in their mature form exemplifying no laws of growth and development, was of little philological use, and will not be missed. The growth of the French from the Latin will be studied to infinitely more advantage in the pages of Brachet or Littré. It would not have been amiss, we think, to have retained the specimens of oldest Latin, though they are to be found in such common books as Donaldson's *Varronianus*.

We cordially recommend this new edition of a favourite Lexicon, an edition which may almost be regarded as a new work, to all students of Latin literature, but especially to the Teaching Profession and the student of Honour Classics in the University. We feel satisfied that a careful and constant use of it will greatly conduce to the growth of sound and accurate scholarship.

G. H. R.

THE SKIN AND ITS TROUBLES. New York: D. Appleton & Co. Toronto: Hart & Rawlinson.

This is the seventh of the series of *Health Primers*, prepared by several eminent medical and scientific men of London. They are intended to be useful and reliable guides in all matters pertaining to the health of the people. In the ninety-four pages of this little book a great deal of useful information and much good advice, based on extended knowledge and experience, are given. The remarks on the cleanliness of the skin are particularly good. We cannot

say the same of those about clothing, which deal too much in generalities to be of much use to persons seeking guidance.

The writer devotes several pages to *Ringworm*, which teachers cannot fail to benefit by reading. He speaks of it as a fungus,

and strongly urges that "in schools, and other institutions, the greatest precautions ought always to be in force, of a preventive nature, and, when a case of ringworm occurs, complete isolation should be carried out."

EDITORIAL NOTES.

THE LINDSAY DISMISSAL CASE.

From the brief comment, in our editorial note of last month, on the dismissal of the Head Master of the Lindsay High School, it will be inferred that the Trustees of that Institution, in their action in the case, have not distinguished themselves by any scrupulous regard for fair dealing, or by any considerations which should have had weight with intelligent and honourable public men. The facts of the case are these:—Mr. Dobson was appointed some eight years ago to the Head Mastership of the High School, during which period, though having only one assistant, and working in a locality by no means productive of promising school material, he was able to do his work with creditable success, and to maintain a fair character for the school under his charge. We have the testimony, to the efficiency of the Head Master's work, of the Mayor of the town (Col. Deacon), one of the few members of the Board who seems to have acted with honour and fairness in dealing with Mr. Dobson. At one of the Board meetings, Col. Deacon said of the Head Master's work, that "in 1875 he passed six third-class teachers, one in law and one in medicine; in 1876, four third-class teachers, and one in law; in 1877, eight second and eleven third-class teachers, and one in law; in 1878, nine second and seven third-class teachers, and two in Arts; or a total of fifty-five in five years, which he (Col. Deacon) did not consider bad work at all." In 1879, from a

variety of circumstances, which form a substantial defence of the Head Master, he was unfortunate enough to fail in passing any of his pupils through the Second-class or Intermediate Examination,—a circumstance as exceptional as it was notable, and which sharply aroused his School Board from its lethargy and the indifference with which most of its members had previously regarded his work. The circumstance of this untoward result of the Midsummer Intermediate was, as may readily be conceived, a cause of deep chagrin to Mr. Dobson, though the parsimony of the School Board which left the efficiency of the school, with an average of eighty of an attendance, to the labours of a Head Master and *one* assistant, with the *occasional* help of another, might well absolve the principal from sitting severely in judgment upon himself. But besides the indifference of Mr. Dobson's trustees to the efficient equipment of the school—manifested not only in their refraining, until too late, to appoint a permanent third master, but in their indifference to supplying until recently, and even then with some qualification, a really capable and efficient first-assistant—Mr. Dobson has had to contend against the rivalry of High Schools in neighbouring towns, each supplied with at least four masters, though not having a much greater average attendance. The situation, moreover, was more grave in Mr. Dobson's case, as these rival schools were situated in centres where public intelligence and sympathy, in the interest of a high standard of education,

is not demoralized by the illiteracy and stinginess of Trustees, against which Mr. Dobson had largely to contend, and whose connection with school matters can only result in lowering the character of the schools under their control. But Whitby, Port Perry and Bowmanville, with their efficient staffs and liberal School Boards, no doubt would not only attract the better class of pupils that would otherwise go to the Lindsay School, but, by their greater efficiency and higher character, would also place the institution under Mr. Dobson's charge at a moral as well as a professional disadvantage. This much it is only just to say in exculpation of Mr. Dobson. But awakened for the moment from their supineness, by the result of the Intermediate Examination, let us see what was the action of the Lindsay School Board with reference to the trust they had previously shamefully neglected, and what their attitude towards the masters in charge of the school. Here, unfortunately, we stumble upon what, in the main, has been the evident cause of failure, and the explanation of the low standard of the institution, viz.: the incapacity and obstructiveness of about one-half of the Trustees, and their inability or unwillingness to devise remedies for the improved administration of the school's affairs that would be at once just and honourable in their relations to the masters in charge, and intelligent and sagacious in their duty to the school. Instead of manfully accepting their share of the responsibility for what had befallen the school, the first move was to hold the Head Master wholly accountable for the state of things that had come to light. Unreasonable and inconsistent as this was, it was but the *first* act of injustice done Mr. Dobson by his School Board. For a time juster views prevailed, and a majority of the Trustees espoused the Head Master's cause. Meantime private calumny was active, and the malignity of ignorance began to do its work. Still there was no official arraignment of the incriminated Head Master, and the unsuspecting victim went on with his duties. The local press, of course, had its say on the subject, but with little

chivalry of feeling, and with no desire to serve other than party interests at the Board. Finally, a meeting of the Trustees was held to consider the re-appointment of the teaching staff of the school, and those having the confidence of the Board were asked to apply for re-engagement. Mr. Dobson was one of those solicited to send in his application, and, accepting the implied endorsement of his professional efficiency, he responded to the invitation. Four days afterwards, the Board that had just practically expressed its confidence in the principal, and had not hitherto preferred a charge or, so far as Mr. Dobson knew, officially entertained a doubt of his usefulness, dismissed him! To crown this outrage, and to shield those who had so cruelly reversed their vote in favour of Mr. Dobson, the proceedings at one of the Board meetings were suppressed, and a subsequent session failed to right the Principal's wrongs. It would be painful to dwell on this matter further, and we leave the Lindsay School Board to the pleasant recollection of its grim work, with the stigma which attaches to it in its act of treachery and dishonour. As we deal in another part of this issue with the attitude of Trustees in relation to the "Intermediate," we need not here draw any lessons from the above recital of facts. We again extend to Mr. Dobson our sympathy with him in the painful position in which he has been placed, and repeat the expression of our hope that his professional reputation may not suffer from the injustice of which he has been the victim.

THE WALKERTON HEAD-MASTER-SHIP.

The case of Mr. Arnoldus Miller, of the Walkerton High School, is, in the main, identical with that of Mr. Dobson, though the dismissal of the former gentleman, we are glad to say, was unattended by the circumstances which so painfully marked the Lindsay case. To Mr. Miller, however, the issue has been sufficiently disastrous, and that without a shadow of reasonable justification on the part of his School Board. But

were this otherwise, Mr. Miller's many years' labour in their service might have counted for something. Eight of his twenty years' work as a teacher had been spent among them. For three years he had worked single-handed, and for the past five he had had but one assistant. Whatever reputation the school had was due to him. He had, moreover, raised the attendance from seventeen to nearly a hundred pupils. He had passed seven University matriculants, three of whom had gained scholarships. He had also turned out four law students, nineteen second-class, and fifty third-class teachers. Yet all this record must be forgotten in presence of the short-comings of a single examination. We fear for the largeness of the trust reposed in School Boards if dismissal for inability to pass a certain number of pupils, or even none, through the "Intermediate," is to be made the rule. If this injustice is to continue, we fear, also, for the educational interests of the country, for good teachers will not accept positions where the tenure of employment is so uncertain. But what craze has come over Trustees in this matter? Do they not know that the truest aim of education is to train the mind rather than to cram it? And what boots it, save for the trifling Government grant, how many shall pass the "Intermediate," if the mental faculties of the pupils are being wisely developed, and their powers of acquiring knowledge rightly trained? Results will come by and by, and they will be the more satisfactory if the right processes of education are not reversed. That wiser counsels among Trustees may yet prevail in regard to this matter, must be the sincere wish of every true friend of education, as well as of the teacher. Meantime it is a pity that good men like Mr. Miller and Mr. Dobson should become the victims of narrow views and false notions.

A MUSEUM FOR TORONTO.

When is Toronto to have a proper Museum? This question appears to evoke but little or no response, and yet, how important an instrument in education is a good Museum! Canada is very much behind the age in this

respect. One of the first remarks made to us the other day by a Canadian gentleman who had just returned from a tour round the world, was to this effect. He noticed in all the Australian Colonies large, fine and prominent buildings which the citizens took a pride in pointing out as their Museums. We do not expect to find in such places the treasures of art and the wonders of science in the lavish profusion noticeable in the Museums of European capitals. But we may well look to see in a Colonial Museum the best possible selection of aboriginal implements, tools and ornaments, of local fossils, of the fauna and flora of the country, and the relics of its early history. Supplemented by good copies and casts of pictures and statues, and by original sketches by provincial artists, such a display would have much to attract, and in time we might hope that growing wealth and love of art would bring original paintings across the ocean. We notice an interesting account in our contemporary, the *Revue de Montreal*, of the opening of the Museum in that city, and hope that Toronto will hasten to follow this example. In order to give a lively interest to such a venture, an energetic management is needed. The new plan of loan exhibits should be resorted to, in order to prevent the institution from becoming stale and unprofitable; no slight danger when we consider the natural scantness of a newly-established collection. Many of the curious old pieces of furniture and household relics of the early settlers' days which were shewn by the York Pioneers at the last exhibition, might have been kept, with the leave of their owners, for temporary purposes, at such a Museum. Again, the recent collection of early printed books shown in Toronto, on the occasion of the Caxton celebration, demonstrates the fact that we are not as a country at all destitute of the material for most interesting literary and bibliographic display.

It is to be hoped that some one having the higher education of the country at heart will make a move in the matter at as early a date as possible.

EDUCATIONAL JOTTINGS.

HONOURS TO A CANADIAN.—We are pleased to notice that an esteemed contributor to the Mathematical Department of this Magazine, Professor Edgar Frisby, M.A., formerly of Toronto, and now in charge of the Naval Observatory, Washington, has been honoured by the American Government with the commission to proceed to California, to observe and report upon the total eclipse of the sun, to take place on the 11th January next. The location selected for Professor Frisby's observations, is a point on the Pacific Coast, about 250 miles south of San Francisco.

Professor Frisby is a graduate of Toronto University, and won the Silver Medal in Mathematics in 1864. His talents and high repute as a Mathematician have deservedly won for him the present acknowledgment of the United States Astronomical authorities.

PUNCTUAL attendance is secured in the Liverpool Board Schools by closing the doors against late scholars at 9.15 in the morning, and 1.30 in the afternoon.

THE English Kindergarten Society lately held its annual meeting in London. It is in a prosperous condition, numbering 217 members, of whom 40 are new ones since last meeting. Its funds show a handsome balance, and of the twenty-two candidates who presented themselves for examination under its auspices, not one was plucked, but all received first-class certificates.

PROFESSOR BLACKIE, of Edinburgh, lately, in a short address in connection with a bazaar that had been held for the purpose of aiding the students of the University to clear off a debt upon their Club, expressed very pithily his opinion of this means of raising money. "It was a proper thing to spoil the Egyptians on all occasions. No greater good could be done to the public than that of taking money out of the pockets of the people for a laudable object."

BY a new law to be introduced by the Minister of Education of Belgium, elemen-

tary instruction in that country is to be freed completely from clerical control by a plan of "neutralization," and agitation is going on to bring secondary Schools and Universities under the same law. Compulsory education is regarded as a necessary and indispensable consequence of this secularization, or rather, nationalization of the Schools.

EDUCATIONAL INTELLIGENCE.

COBOURG COLLEGIATE INSTITUTE.—We observe that the Principal has made arrangements for "Half-hour Lectures," to be delivered at the Institute, by ministers of the town, and others, every alternate Friday at one o'clock,—the exercise constituting the close of the week's work. This is a capital arrangement, for both pupils and the public; and Mr. McHenry will be thanked for his enterprise. The first address was delivered by Rev. T. W. Jeffrey, Methodist Minister, on the subject, "Incentives to Earnest Study," which was treated in an able and thoroughly practical manner. The Rev. gentleman first very forcibly showed the importance of useful knowledge, and then dwelt upon the various incentives to study, as the only means of its acquisition. The students and ex-students present manifested the deepest interest in the address, which cannot fail of inspiring them with greater earnestness in the pursuit of their studies. It is intended that these half-hour lectures form a definite and valuable adjunct to the regular work of the school; the senior pupils being required to furnish an abstract of each address, after its delivery.

VICTORIA UNIVERSITY.—The friends of this institution throughout the country have conceived the happy idea of raising what are termed "District Scholarships," varying in value from \$100 to \$25, to be renewed, it is expected, from year to year. The total sum thus placed at the disposal of the Senate is \$1,190, and at a special convocation of this body on the 4th instant, the allocation resulted as follows:—

1. *Matriculation*, \$425.—The department

of Classics, \$100; Mathematics, \$100; English and Modern Languages, \$75; General Proficiency, \$100 and \$50.

2. *Undergraduate Course.*—In the department of Metaphysics, \$50 at the end of the fourth year; Logic, \$25, end of second year. Classics, \$50 at end of first year; \$90, end of fourth year. Mathematics, \$50 at end of first year; \$75, end of second year. Natural Science, \$75, Physics, end of second year; \$50, Chemistry, end of third year; \$25, Mineralogy, end of fourth year. French and German, \$50, end of fourth year; English, \$50, end of fourth year. Theology: \$50 and \$25, Systematic Theology; \$25, Old Testament Exegesis; \$25, New Testament Exegesis; \$25, Hebrew; \$25, New Testament Greek.

These scholarships, added to former inducements, must greatly increase the popularity and efficiency of this University.

A scheme for holding "Local Examinations," after the model of Oxford and Cambridge, was introduced, and advanced well towards maturity.

Examiners and Associate Examiners were appointed, also a Committee to prepare a course of study for the Doctor's degree in Theology.

The matriculating class is quite large, as will be seen from the list given below:—

Bellamy, J. S., private study; Bryers, E., Cobourg Coll. Inst.; Buchanan, T. C., Cobourg do.

Caldwell, J. W., private study; Campbell, W. A., Peterboro' Coll. Inst.; Clark, J. L., Stanstead Wesleyan College and Cobourg Coll. Inst.

Dean, W. H., Lindsay High School.

Eldridge, G. S., Cobourg Coll. Inst.; El-

liott, G. A., private tuition; Emberson, T., Cobourg Coll. Inst.

Greenwood, W. J., Collingwood Coll. Inst.

Herrington, W. S., Cobourg Coll. Inst., and Brantford do.; Hincks, W. H., private study; Holman, E., Cobourg Coll. Inst.; Hopper, S. T., Cobourg do.; Horkins, W., Campbellford High School; Hossack, D. C., Cobourg Coll. Inst.; Huycke, E. C. S., Campbellford High School.

James, C. C., Napanee High School.

Laird, E. C., Whitby High School; Langford, A. L., Brantford Coll. Inst.; Lazier, J., Cobourg do.

Morris, T. J., Goderich High School.

Pasco, R. M., Cobourg Coll. Inst.; Popham, E. S., Cobourg do.; Payne, G., Cobourg do.; Powell, F. K., Cobourg do.

Rice, A. T., Cobourg Coll. Inst., and Brantford do.

Scott, L. B., Peterborough Coll. Inst.; Shenick, A.; Shipman, R. H., Port Perry High School; Staples, S. G., Cobourg Coll. Inst.; Stobbs, J. T., Sackville, N. B., and Brantford Coll. Inst.

Watson, G. R., Waterdown High School; West, G. H., Cobourg and Brantford Coll. Insts., and private study; West, R. M., Campbellford High School; Williams, H., Cobourg Coll. Inst.; Willoughby, H., Peterborough do., and Cobourg do.

Honours in Classics.—First-class: Campbell, W. A.; Greenwood, W. J.; Watson, G. R. Second-class: Laird, F. C.; Langford, A. L.

Honours in Mathematics.—First-class: Bellamy, J. S.; Herrington, W. S.; Morris, T. J. Second-class: Watson, G. R.

The names are arranged alphabetically, and not in the order of merit.

THE CANADA
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NATIONAL EDUCATION IN ITS RELATION TO RELIGION
AND MORALITY.*

BY JOHN MILLAR, B.A., ST. THOMAS.

ONE of the most hopeful signs of continued prosperity in educational matters is the constant discussion to which the various features of our school system are subjected. The objects we seek are not so far apart as our methods of securing them. We look at matters from different stand-points; but the results for which we strive are the same. We all acknowledge the advantages of education, and regard the moral tone of prime importance. The vast majority contend that morality should be based on religious principles; but our different views on the matter of religion have given rise to a variety of schemes for combining the training of the moral nature with the cultivation of the intellect.

If I understand aright the fundamental principles upon which our educational structure is based, little ground is left for uncertainty regarding

the relations of the Government, and those of the church, to our school system. Each thoughtful citizen, as he reviews the history of the successive changes that have resulted in giving us a system excelled perhaps in no other land, will be persuaded to examine carefully the powers and responsibility assigned to the parent, the clergyman, and the statesman.

The nation should take account of its stock at different times, just as the merchant who is judicious completes his inventory. Thus it may be known where departure from former practices may have been beneficial, and where baleful; where the expansion of original formulas has been prudent, and where indiscreet; where there has been, and still may be, improvement, and where modifications have not brought advantage. In the case of education, we may, by this means, fix the limitations, and appreciate the scope, of different authorities, whether emanating from national or

* A paper read before the County of Elgin Teachers' Association.

municipal sources, and learn the part that can with greatest advantage be exercised by teacher and preacher.

Where church and school fully understand their respective functions, it is difficult to suppose that any just cause of antagonism can arise. The history of education is, however, so inseparably connected with the history of Christianity, and the latter so closely woven with church aggrandizement and the struggle for toleration, that contests have arisen, which, apart from such associations, might never have taken place. In Canada, we have begun to regard the absolute divorce of church and state as essential to the purity of the one, and the safety of the other. The principle has remained so long unconfirmed by the dominant practice of Christendom, that it can scarcely be regarded as an axiom. Whatever of vindication it has received has been through the sternest processes not only of logic, but also of arms. In its behalf it has demanded the sagacity of philosophers and the carnage of Lutten. The struggle has not been so much with religion, as with church organizations. Mistaken notions on this question, are connected with the history of Philip II., the Falk Laws, and the late defeat of Mr. Gladstone. The spirit of toleration has been one of slow growth. Neither prelate nor presbyter, Claverhouse nor the Covenanters, are free from its unpleasant associations; and even the Puritans who crossed the Atlantic in the *Mayflower* were not imbued with consistent views on the question of religious freedom. The authority of the church has more than once clashed with the authority of the state; and with no subject have solutions of the difficulties occasioned been more perplexing than with that of education. With us, freedom of thought in religious matters has been secured by repeated enactment; but the assumptions of the church in secular affairs does not

belong entirely to the past. We have no established church; but the lingering remnants of the principle are still to be seen. It took a dozen years to abandon the appropriation of public funds for sectarian colleges after the settlement of the Clergy Reserves question. We give no such support now; but we give what is more than an equivalent. Our Legislature refuses to give a dollar to assist any denominational college; but it gives the power of conferring degrees, which is far more potent in "drawing" students. We look upon the matter of examinations for teachers, and for the professions, as too important a question to be relinquished by the state; yet our university policy is a glaring proof of our inconsistency. The efforts of the Government to maintain a high standard of examinations are inoperative, in consequence of the "one horse" system, as a learned writer terms it, to which the country has been committed. The Education Department controls by careful examinations the granting of certificates for First, Second, and Third-class teachers, yet a degree from any University qualifies for head master or assistant master in a High School; head master of a Public School, or county or city Inspector. What would be thought of a system that would allow each High School and Collegiate Institute to pass its own students at the Intermediate Examinations? "The quality of mercy" would in all probability come into extensive practice; but the value of certificates would suffer a serious depreciation. Can a principle that would be unsound in the case of Second and Third-class certificates have any defence when extended to the examinations for higher positions? Why allow a church to determine the necessary examinations in the one case, if not in the other?

Since neither the Reform nor Conservative party has, within the last

decade, favoured state aid to denominational schools and colleges, and since increased and increasing liberality has been shewn in supporting the national institutions, it is quite evident the country has declared itself in favour of unsectarian education. That decision is wise, or the reverse. If wise, the actions of the different denominations should tend to increase the usefulness of the national schools; if unwise, the adherents of the various churches should, as citizens, use every means to break up our system, and hand over the work of education to the different religious bodies.

Our school system has been applauded on all hands. Every religious denomination has patronised, more or less, our national University. Among the warmest supporters of our national institutions have been many of the clergy of various churches. The highest confidence has been expressed in the moral tone of our schools. The amplest provision has been made, by numerous regulations, for securing religious instruction by ministers of various denominations, and yet the policy pursued by some would indicate that the "usefulness" of the state institutions, in their opinion, "is gone," and unsectarian education a failure.

If the state performs its assigned work in a proper manner, no church has any necessity to undertake a responsibility, and perform duties, that pertain to the Government and the Legislature. The state neither does nor can make provision for the theological training of the ministers of religion. That duty is incumbent upon the churches themselves; beyond this work, the church should not go in the matter of education. It is no more the province of a church to build colleges, than to build post-offices. It is no more the function of a religious denomination to train—as some are doing—doctors, lawyers, and teachers, than it is to train masons and black-

smiths. For a church to pay a professor to lecture on Dynamics, or Geology, is a departure from its legitimate sphere, as much as to pay the salary of the printer who instructs his apprentices. That a religious body may, under certain circumstances, be obliged to do work of this kind, I admit. The circumstances are only to be found where the state neglects its duty, and then prompt action should be taken by the members of churches, as citizens. We cannot as electors uphold what we condemn as members of religious denominations. If the national institutions are immoral, or irreligious, why should they be supported by our representatives in Parliament? Why defend our national system as citizens, and weaken its influence as adherents of churches? Why expend thousands of dollars annually in sustaining a Provincial University, and give it the cold shoulder as members of churches, and even tax ourselves as denominations, to build up rival universities, to perform similar work? If one body must have its university, why should not every other enjoy equal advantages? Who then are to patronise the State College? If each denomination must have its own university, the country should never bear the expense of one that is only attended by those who have no religion. Those who support denominational colleges should go a step farther. If sectarian control be good for the few, it is also good for the many; and nothing should be thought of by advocates of this kind but a complete surrender of education to the various churches.

It is only fair to acknowledge in this connection, that the Roman Catholic Church cannot be charged with inconsistency. That body has never conceded the right of the state to control education—our system, it has only accepted under protest. In accordance with its principles, it secured Separate Schools; and in the

year preceding Confederation, made efforts in vain to extend its views. To-day, the Roman Catholics of Ontario, may charge many Protestants with deserting their principles. They may say, "You now find your state institutions a failure! I contended that colleges supported by the state would be godless, and that moral training could not be given unless in connection with religious dogma. Now you admit the soundness of my policy in securing Separate Schools; and you tax yourself to support colleges to do the same work which you maintained the national institutions would do for you!"

We may be told, however, that elementary education may be national, but higher education, to be safe, must be denominational. The statement, however plausible, is theoretically absurd, and when examined in the light of experience, its absurdity is still more apparent. It might have some colour of truth if sectarian influences form the aim of these institutions; but our denominational colleges are prone to proclaim their freedom from dogma, and their great liberality of religious sentiment. This tendency to greater liberality, is a virtual abandonment of the principle of their *raison d'être*, and an acknowledgement of the soundness of the undenominational or national system.

To say that religious control is necessary in the case of higher, but not in the case of elementary, education, will appear strange to any one who knows how much more susceptible children are to moral impressions than grown-up persons. Is not the twig more easily bent than the sapling? Is the teacher of a Public school a safe guardian of character, but the professor of a state university a dangerous one? Is a trustee more likely to exercise care in selecting a teacher than the members of a closely watched government, in appointing lecturers in a national college? Are

we to understand that a boy may learn vulgar fractions, and read the Third Book of Lessons with perfect security, but when he gets as far as Trigonometry or Sophocles, he stands on slippery places. Experience is all the other way. Froude the historian is not far astray when he says our most lasting religious convictions are those of early youth which centre around the word *home*, the Christian sabbath, and the church of our childhood. When proper attention is given to the cultivation of correct principles in the boy, I have little fear they will be absent in the man; and when we see the children of moral and religious parents troublesome at school, and disgraceful in public, we may rest satisfied that their home training has been seriously defective. In short, every argument in favour of denominational influences for a college can be used with additional weight for the public school.

To hear the statements of some advocates of religious colleges, one would suppose that every state institution was a centre of infidelity. Voltaire, it should be remembered, had never the associations of a national university. Tom Paine received his education in England long before unsectarian schools were known. Neither Gibbon nor Hume was saved from scepticism by the fostering influence of denominational colleges.

I am not disposed to think Christianity will suffer from the writings of that vigorous class of scientists and mental philosophers, for which the present age is distinguished. If I might presume to express an opinion, it would be that the evolution theory, and the new metaphysics, will confirm, though they may modify in detail, our convictions regarding the adaptation of Christianity to the wants of our race. It would be well, however, for those who fear danger from that quarter, to remember that Darwin and

Tyndall, Huxley and Froude, and Herbert Spencer, are examples of what may be developed under the patronage of denominational education. Nor have national colleges been behind in furnishing defenders of religious truth. One of the most gifted champions of Christianity in our own day, was a student of Harvard college; yet Rev. Joseph Cook has routed the whole band of Boston infidels and free-thinkers. The president of McGill College, an undenominational institution, has secured a wide reputation, no less as a scientist than as an upholder of religious power. Denominational universities cannot boast of their superior government and the healthier *morale* of the students. Recent events at Yale College indicate a laxity of discipline, unexampled at Cornell. The disgraceful conduct of some of the Princeton College students, as exhibited a short time ago, does not place at any disadvantage Harvard, Ann Arbor, or our own Toronto.

When a church takes away from the state institutions its sympathy and support, the latter must lose as well as the former. By refusing to give its proper share of encouragement, the very defects which it suspects must be produced. Would it not be more patriotic for a denomination to maintain its right in determining the religious and moral character of the national schools? It is preposterous to suppose that any college in Ontario could retain its position as a recipient of public funds, if there is any well-grounded apprehension of defective moral teaching. Are not the people who rule the country the adherents of the various denominations; and surely the influence of religion is more effective than that of infidelity. When a member of a church speaks of "our university," he should mean the national institution; if not, the policy of either the state or his church is wrong. The church that does not stand by the

national system of education, acts antagonistic to its own interests. That denomination will exercise most weight in the country, in proportion to its population, that utilizes most fully the admirable system of education which the state provides. That church that shuts itself out from the provincial institutions will find its adherents, through want of intellectual power, occupying secondary positions in the service of the country. Does not our own experience prove the truth of each of these propositions? One of the religious bodies of Ontario has been frequently charged with having more than its due share of political power. Its adherents are said to gain the greater number of positions of trust, numbering more seats in Parliament and offices in the Executive than any other body.

If such is the case I attribute the fact to no national clannishness, or superiority of church organization. If its influence is high the cause arises from the educational advantages which the wise policy of that church has secured. That church has ever stood firm in defence of our national system. It has resisted every effort made to transfer the work of education from the domain of the State to the domain of religious denominations. Its ministers give no uncertain sound when spasmodic attempts are made to disendow our highest seat of learning. As a church, it builds no colleges, except those for theological purposes, and has made no efforts to secure university powers. We have, on the other hand, a church that has repeatedly complained of not having a fair proportion of representatives in Parliament and in municipal councils. So strongly do many of its adherents feel on this point that leagues have sometimes been formed with political parties to secure increased power in the administration of public affairs. A neglect of its wishes in this respect

has more than once endangered the existence of cabinets. That it does not secure positions of importance in proportion to its numbers can scarcely be doubted. This also has its cause. The spirit of bigotry is dead in so far as standing in the way of political preferment. No man in Ontario is kept in the background solely on account of his religion. With us the spirit of toleration is widely spread. If the church to which I refer has not the position that its numbers deserve, it is owing to lack of the power which education gives. It has stood aloof from our national system. It has avowed itself a firm supporter of the denominational system and only accepted the national institutions when circumstances made it impossible to displace them.

As a result, its influence is lowered by reason of its inferior educational status. Such comparisons as I have here alluded to are frequently made, and if the facts justify them, they furnish incontrovertible proof that a church gains by supporting the national system, and loses when it undertakes an expenditure for sectarian schools and colleges.

I have now fully stated what I regard as the true attitude of the church with respect to the question of education. Its position should be one of harmony and fostering care. The principle of moral and religious truth should guide our educational authorities just as it should guide the actions of all who assume responsibilities for a nation that acknowledges the necessity of religion. Our schools and colleges are not religious institutions, but they are the institutions of a religious people. We do not write God in the constitution, but we engrave His name on the tablets of our hearts. If the governments that have ruled our country cannot be called Christian, they have been the administrations of a Christian people.

We cannot sufficiently eulogize the character of our public schools. We cannot estimate, much less can we exaggerate, the good they have done. Over hill and dale their sweetly chiming bells ring out a joyful welcome to the rich and the poor alike. Above their portals, carefully chiselled, is the one simple, but comprehensive word, "Equality," the hope and talisman of the nation. For what has been accomplished, let us be thankful; for what may yet be accomplished, let us be earnest. Of one thing I am certain—and that is that the people of Ontario, however they may differ among themselves, will yield none of the guarantees and constitutional sanctions that have given a high moral tone to our national schools. While "*Nulla vestigia retrorsum*" becomes our motto, let us relax none of our vigilance. I have no sympathy with those who contend that the State should discard religion in framing its laws. With no such spirit did so eminent a jurist as Judge Story limit his interpretation of the constitution of the United States. The magnificent periods of Daniel Webster, in the celebrated Girard Will Case, fully reflected the sentiments of the American people in declaring themselves a Christian nation. Canada is certainly not behind the neighbouring republic in its recognition of the province of religion. The teacher who thinks his position in the school is one of indifference towards religion has failed to make himself acquainted with the spirit and even the letter of the law. The man who teaches any other morality but that founded on broad Christian doctrine violates the school regulations as much as he would by neglecting instruction in English grammar. The infidel in charge of a school is an intruder and a dishonest person as much as the minister who preaches a doctrine he does not believe. We pride our-

selves on freedom of thought. I should grant the fullest latitude in opinion. I should allow everyone who wishes to believe that Christ was only a greater Socrates or Confucius, and that the study of "protoplasm" will shew that religion is only another name for superstition, to hold, though at his own peril, to those opinions. Christianity has too much "good will to all men" to sanction any other attitude, and if true, fears not, but rather encourages, investigation. Why hinder the so-called moral man who is a sceptic in religion from entering the profession of the teacher? The question is easily met. Our school system is a compromise made by the parent with the State. The parent who believes in Christianity is responsible for the religious training of his child, and he simply delegates a portion of his duty to the teacher who as an officer performs his work in harmony with the compact entered into with the State. The teacher is bound to discharge his duties in accordance with the terms of the agreement. The nature of the agreement must be observed by the teacher; its modification, if desirable, pertains to the politician. I have little fear any greater laxity will be advocated in this direction. As soon as our school law recognizes that morality is not based on Christianity, our national system is doomed. Such a revolution in public sentiment may be regarded as a most unlikely occurrence. Should it happen, we might necessarily and properly adopt a denominational system. It may be asked, why cannot the teacher perform his duties without being obliged to indicate, in his relations to his pupils, his opinions upon principles of morality or religious convictions? Simply because no one can do what is impossible. To give colourless teaching is, I contend, what cannot be done. No one would allow that the teacher should appear to be what

he is not. Christianity admits no neutral position. He that is not *for* is *against* Christ and his followers. The man who cultivates the intellect must call into play and train the moral faculty as well. The scholar is not, like a dial-plate, the passive recipient of external impressions. The teacher cannot hide his moral nature and bring into action his intellectual power. When the mental faculties have been aroused he must possess a logical power of analysis more acute than that of the most skilful teacher who can develop the intellectual and let the moral lie dormant. From every figure on the blackboard, from every line and name on the map, from every verse of Homer, and from every re-action in chemical science, the inquiring boy may be brought to push his investigations downward to conscience and upward to God. How can I teach anatomy without giving a bias in favour of, or in opposition to, materialism? How can I teach history, and display the charts which its pages unfold, without tracing effects to causes and attributing more or less to divine omniscience? If I teach mathematics, how easy to convince that experimental religion is all a delusion and revelation a myth, because they cannot be demonstrated like a principle in the Calculus or a proposition in Euclid. I must, however, impart tone and effect to my teaching. I may appear silent upon many great problems, but if I deal with matters upon which their minds become active, I cannot fail to leave my impressions. My voice may not be heard, still my opinions are grasped, if only from the "shrug of my shoulders, the wave of my hand, the curl of my lip, or the scornful flash of my eye." I must speak if I feel, and if I do not feel, I am no teacher. If I am so cold-blooded and passionless as not to be stirred by the things that form a

bond between my soul and the souls of my pupils, I am not a suitable person to be entrusted with the training of the men and women of the rising generation. We have heard it said that the mind may receive moral tone from what may be termed the principle of *humanity*. We have Herbert Spencer spending a life-time in elaborating a system of moral principles which he presumes will take the place of a system which, to his thinking, has outlived its usefulness. We examine the last work, "The Data of Ethics," of that able writer, and compare it with the precepts of the Bible. Hope, warm feelings, and bonds of sympathy towards our fellow-man characterize the latter, while a keen, cold, and intellectual philosophy of the head, and not of the heart, marks the pages of the other. The principle of *humanity* appears to me a frigid and metaphysical expression, a relic of Christian sentiment, unconsciously retained. He who thinks moral teaching may be performed apart from religion, spits on the grave of his grandfather, or, as Benjamin Franklin puts it, resembles the son who "kicks the mother that has left him a legacy." The teacher cannot separate his personality from his instruction. What he *is* strikes the pupil ten times more forcibly than what he *says*. Writers who would scarcely be regarded as orthodox give full assent to this statement. Bagehot very properly says "it is the life of the teacher that is *catching* and not his tenets." The character of the teachers of our early years will remain stamped upon our minds until the day of our death. The life of the Great Teacher had more to do with the spread of Christianity than his precepts. The successful teacher must possess a strongly marked individuality. Without such individuality that magnetic power which every good teacher exercises is wanting, and the power also to mould

the minds of the students entrusted to his care.

How shall morality be taught? I should strongly oppose the use of text-books for the purpose. I should also object to the setting apart of certain hours for imparting ethical instruction. To use the Bible as a school-book I think unwise. Better to have a teacher who respects its teaching. To the teacher who believes in the power of prayer the reading of a form of prayer is not of prime importance. To read a chapter from the scriptures and that excellent form of prayer prescribed, I do not regard as essential, though I think the practice has advantages. It is a recognition, formal though it may be, of the value of religion. It associates the idea of home with school life, and brings the school together as a family. That is an important regulation that places the teacher in the position of a parent. It forms the very key-stone of good discipline. The moral power it confers is enormous, and the responsibility is equally great. Not by long moral disquisitions does the successful teacher touch the heart of the child. Moral training, to be effectual, must assume a silent character. Ponderous and prosy lectures have more than once produced a distaste for religion. When the young heart is softened by some wave of emotion, or quickened to enthusiasm by some inspiring example, then drop the good seed in the fallow ground. A word, a thought, or even a look of approbation, may thrill the soul and echo through the halls of memory till life departs. The good teacher makes his pupils moral unconsciously to themselves. The law of kindness and good manners attends his every act. Formal rules are most unwise. A smile, simply, indicating satisfaction or an expression of surprise, when politeness has been neglected, will do more to form the character than per-

haps the most masterly essay on the advantages of refinement and culture. Especially should the teacher silently use the moral power of the school in correcting defects that may arise. Profanity may often be cured by laying bare its rudeness, when exposing its wrong might fail to influence. We should keep our pupils close to us in sympathy. To lose faith in them will make them lose faith in us. A harsh reproof, falling on the tender soul, is more blighting than the frost of spring-time.

The force of example should be the great influence employed by the teacher in developing moral character. The man who is so cold in his manner, so touchy in his disposition, that the pupils are continually frozen by the scowl on his face, or cut by his snappish words, will never leave the proper moral impress. The teacher who habitually loses his temper, is vulgar in his language, intemperate in his habits, or slovenly in his manner, will not exhibit his powers in moulding the character of his class. His conduct out of school should be above censure and in harmony with religious principles. His walk in life should not be marked by any habits or associations of questionable propriety. When incidents arise demanding his opinions he should always be found on the safe side.

If amusements of doubtful moral tendencies prevail in the vicinity; if an Underwood lectures, or a temperance by-law is discussed, the religious community should not feel that the views of the teacher are in harmony with those of their opponents. The pupils will desire to know, and will not fail to find out, his opinions. There should, at the same time, be no ostentation in his morality. His life should be a constant commentary on this words, which young eyes will not be slow to read. The virtues which he desires to inculcate in them should be reflected in himself.

I have failed in this article to make myself understood if I have conveyed any impression of hostility to a single religious sect. I have equally failed, if I have appeared to favour any religious instruction by the teacher in addition to what the spirit of the law suggests.

I protest against every effort to draw away the sympathy and encouragement of any denomination from our national institutions by endowing schools and colleges to do work which those of the State already perform. With equal earnestness I protest against those who would divorce morality from Christianity. I speak in no disrespectful sense when I regard both parties as enemies to national education as well as to religion and morality. If I thought differently I should shut my eyes to what is going on in Europe and America. I should forget the repeal of many sectarian clauses in the statutes relating to the Universities of Oxford and Cambridge, and the tendencies of the denominational provisions of Mr. Forster's School Bill of 1870. I should forget the efforts of the United States to remove the evils of a former period. I should forget in what consists the strength, and in what the weakness, of the German system. I should forget the overthrow of imperialism at Sedan, and the subsequent overthrow of clerical education, with the defeat of Marshal McMahon's advisers, and the adoption this summer by the French nation of the strongly marked unsectarian clauses of the educational bill of M. Ferry. Above all, I should forget the happy manner in which the various churches in Ontario have united to give us a system of popular education, unsectarian in its character, yet exercising a moral, and I may add a religious, power unequalled in any country in the world.

THE STUDY OF LITERATURE, WITH ITS BEARING ON COMPOSITION.*

BY G. A. CHASE, B.A., GALT COLLEGIATE INSTITUTE.

IN the present paper I do not propose to give a set of rules for the study of literature, or for guidance in composition; rejecting dogmatism in this instance as in others, and recognizing fully the importance of personal characteristics both in teacher and taught, whatever I shall refer to in the way of method will be what I think fundamental principles, or what has been my own practice in teaching.

In conversation last summer with a prominent teacher of a sister province, I remarked that Literature was taking an important place in the schools of Ontario. He replied that he also had tried to do something with that subject in introducing Collier's "English Literature." And on my saying that I meant the writings of the authors themselves, "Pray how do you do that?" was his question;—one, I am bound to say, is much easier asked than answered.

But before turning attention to this point it will be best to know what is the end meant to be reached by the study of Literature in our schools. Is it with the definite purpose of acquiring language, of cultivating the taste, of developing thought; or is it that the pupils may have it to say that they have read such and such writings—that they have *done* such and such authors, as some tourists *do* foreign countries,—that they have

read the books, parsed and analyzed them, and given the derivation of all the words, etc.?

I should not like to believe it was the latter. I should not like to believe that our educational authorities have this end in view, or that in prescribing Literature for us their only purpose was the indefinite one of "knowing something of our leading writers." But whatever may have been their object, one thing is certain, we have the literature, and it rests with us teachers to make it the greatest boon that could be conferred on our schools.

For my own part, I have no hesitation in saying that the leading object of the study of Literature in our schools is the acquisition of language—pure idiomatic English, such as is found in the works of the great masters of our tongue; not a mere vocabulary, but language in its fullest form, in its primary thought-expressing or thought-enwrapping power; gained by an imitation, more or less conscious, of the authors whose works have been read; for the principle of imitation is the one lying at the foundation of the acquisition of a language. Along with this go hand in hand, as necessary companions, the cultivation of the taste, and the development of thought.

It becomes, then, a matter of the greatest importance what works we put into the hands of the pupils; mere whim must not be our guide;

* A paper read before the Teachers' Association at Brantford in July last.

we must have those works that are acknowledged on all hands to be models in pureness of language, in clearness and simplicity of thought and arrangement, and in strength and felicity of expression. Where we have so much to choose from, it may be difficult to get the best, but we must have it if we wish to deal well with those keenly imitative beings, children.

In this respect I do not think our authorities have chosen wisely; for while I heartily approve of the introduction of the study of Literature; while it delights me beyond measure to study and talk over with my pupils the works of Scott, or Goldsmith, or Milton, or Shakspeare; and though my own warmth is met by a corresponding warmth in my class, I yet feel that the real aim is being missed; I feel that we are familiarising the pupils with a style of language, beautiful in itself, forcible, and enshrining the loftiest thoughts, yet not one that is to be employed in the daily round of this prosaic, commonplace life of ours. The language of active life, as well as that of hours of relaxation—a pure, forcible, full language for daily use—can be found only in the study of our prose writers. It seems hardly necessary to insist upon this fact. In prose the meaning of the writer is generally evident; there is not, or there should not be, the turning and comparing that poetry often requires to become intelligible; and thus the mind is left at liberty to take in the thought without being first obliged to pick it out.

Poetical diction is a thing by itself, —it is a language apart from that which we use in our ordinary intercourse with each other; its inversions, its peculiar use of words, in short everything that may come under the head of the so-called “poetical license,” is so far removed from what we call prose, that it should not be

made the exclusive literary study for our students, nor even form a prominent part of it. The school-room vocabulary, or that of home, is so limited in its range that it cannot counteract the influence of this literary study. Our study of Milton, no doubt, has made for our youth an opening into a practically sealed book, and a great deal of pleasure has been thus obtained for them. But I have no hesitation in saying that the effect upon their language has not been good; this will undoubtedly be shewn in their compositions; the imitative spirit of the young will copy everything, the bad as readily as the good; for as yet they have not learned “to choose the good and refuse the evil.” The crowded participial constructions, the forced Latinized inversions or forms, of Milton, are not at all wanted either in the language of our young people, or in that of men and women.

But dwelling still further upon this difference. If a child has heard bad English at home from his infancy; if his associates use bad English, it is not by putting into his hands the writings of our poets, grand as they may be, that his language will be purified; unless indeed he is to be trained up as a prodigy of “fine writing” so much affected by a certain class of people. If the purification is to be made, he must have a correct standard of a form of speech like his own,—for we cannot compare like with unlike,—we cannot correct the child’s bad prose by giving him poetry to study. I am speaking now of our pupils only; for I know very well that the remedy for a bald, dry style of writing in grown up people, is the careful study of poetry. But resuming: We may compare a simple, natural style of poetry with an ornate or a bombastic, stilted style, and readily perceive the difference; and if we are poets, we may learn much thereby. We may indeed require

our pupils to turn passages of Milton and other writers of verse into prose; but, leaving out of the question for the present the utterly destructive effect of this practice, it may be asked how the limited vocabulary and the still more limited knowledge of style will permit of this task being well done? As teachers, we may feel provoked—and in this respect I don't go far from home—and *show* what we feel, at the very poor success that almost always attends these efforts at prose renderings, even when we say that the words of the text are to be used as far as possible. The reason of the failure lies in the lack of an adequate knowledge of language on the pupil's part, from a cause already indicated. I am not merely theorising; I speak to a large extent from practical experience. I lately gave to the "Intermediate" class the speech of Belial, in the Second Book of "Paradise Lost," to turn into prose; three readings alone were fair, and each of these was the production of an ardent reader—they were boys under fifteen—while the renderings by bearded men in the same class were poor. It must be borne in mind that we teachers are not to set *ourselves* up as model writers, nor to make our prose renderings models for imitation; because this would strongly tend to destroy any special independent turn of mind in our pupils and fashion them mentally after the model of ourselves. Of course, in this case, there is the probability of some scholar getting a deeper and clearer glance than we obtain, using a more felicitous expression than we do—a circumstance that I, for one, would rejoice at, though in bestowing commendation, there might be present just a little annoyance at being surpassed: none of us like to be beaten!

Again: Bad English is by no means of necessity ungrammatical English; indeed grammar has but

little to do with good English;—I might even risk the assertion, though it may seem paradoxical, that good English may be ungrammatical. The smooth flow of the sentence; the full, rounded period; the felicity of expression; and the accurate use of words, by which the thought of the writer or the speaker is clearly transferred to the minds of others—all this is entirely independent of formal grammar. Now the study of poetry will undoubtedly have a decided tendency to impart felicity of style and strength of expression; but the flow of the poetical period is different from the flow of the prose one, and except with the master poets, accuracy of expression often has to yield to the demands of measure and rhyme.

Poetry is not then a safe guide in the acquisition of language, grand as may be the thought that it enwraps, and happy as may be its phrases. It is to prose rather that we must chiefly look.

But here now the question meets us, "What books shall we use?" Not "*Readers*," not books of "elegant extracts;" but short complete works, characteristic of their author, both in thought and language; not essays such as Macaulay's on Milton, or the one on Clive, or any other of his historical essays; for although these may display the characteristics of the author, yet the amount of previous knowledge they require to appreciate them and even to make them comprehensible to the young student, will completely over-shadow the language, overlay it with a load of learning, and turn the book into a history, and a disconnected one to a great degree, at that. But we should have such essays as Addison's, Goldsmith's, Lamb's, De Quincey's—or those of numerous other writers. It is needless for me to particularize—the store is practically inexhaustible—works characteristic of their authors, of pure, for-

cible, elegant English, not overburdened with learning, containing a strong human interest—narrative, essay, fiction; this, I think, is what we need.

And here perhaps is the most fitting place to say a few words about the Literature for our Third-class teachers. I regarded the introduction of this subject into the examinations for such teachers as a step in the right direction; but why a few extracts are given, and not a continuous work, as in the "Intermediate" in High Schools, is what I cannot understand. It is a great pity: the candidates get a fragment of knowledge here and a fragment there,—nothing complete and connected, nothing satisfactory; no opportunity to become familiar with any one style—a mere patchwork; the pieces in the book are selected at random; there is nothing to recommend them in any one particular—caught up from any source; the language is often the poorest imaginable. And, as if this were not enough, the candidates are liable to be questioned from other parts of the book than those from which the extracts are taken; they must know not only the biography of the writer, however insignificant he may be, but also of his contemporaries. "Notes" on the extract are obtainable as *helps*—nay, rival sets of notes, in which, by the way, the authors strive to shew their own learning, or else *do actually* shew their utter inability to comprehend what literature means. It is necessary at times to yield to prejudice, or to the established order of things; but it should be done under protest, if we believe the prejudice or the established order is wrong.

And then, as further "helps," the same candidates for third-class certificates have "sets of questions." I give a specimen question from one of these "sets" founded on a short extract in the Fifth Reader from a play of Shakspeare. "Name all the plays

of Shakspeare and divide them into tragedies, comedies, and histories." Is it not perfectly amazing that anyone in his senses should propose such a question? Are these candidates supposed to have read over, and studied, the whole of the works of Shakspeare? Or is it that they somewhere are to get a list of the plays with the divisions indicated by the question, and to commit it to memory? If the former is correct, the requirement is absurd; if the latter is the expectation, the knowledge so acquired is utterly valueless. It often seems to me that these candidates for Third-class certificates are like Issachar—an ass crouching between two burdens.

I trust that this injustice to Third-class teachers will soon be remedied, and I hope that prose literature, such as I have indicated, mingled with a fair proportion of poetry, will soon be prescribed for our schools; that Fifth Books and Fourth Books, as now compiled, will soon give place to real literature. I do not wish to blame our educational authorities over much—I fully appreciate the great responsibilities resting upon them; but I should myself be blameworthy if I did not point out what my experience suggests as improvements in the method of teaching literature to the class of teachers to whom I have referred. And, returning from this digression, let me repeat that I think that the object of the study of literature in our schools, is the acquisition by the pupils of good English. As teachers, we are well aware that what our pupils learn should be put to use, if possible, and, therefore, the language obtained by reading should be reproduced by the pupils in compositions.

I confess that I am not able to lay down rules for the acquisition of a good style in writing, or in speaking; indeed nobody can do so—the art is not learned by rule; we can no more

impart a good style to every pupil, than we can make every pupil a good scholar; but a great deal can be done even for the poorest. The ease with which the style of some writers can be copied, is well known. Every student of the literature of the latter part of last century, knows to what extent the style of Dr. Johnson was imitated; and in our own day, many an aspiring poet copies the style and expression of Tennyson, and dozens of writers are fond of breaking sentences, or jerking them forth, in imitation of Carlyle. Many a man has laboriously written out again and again some work of a favourite author, in order to acquire his style—I have read of one who re-wrote the greater part of Goldsmith ten times for this purpose. This practice is certainly not to be commended, for it leaves no room for originality; it binds the thought to a form not native to it—it does not reproduce the man. The writers whose style pleases us most, in addition to inborn genius, have invariably been wide readers and careful ones; from a wide field their taste has led them to select word, and form, and expression, best suited to what they themselves wished to utter. They have rarely dashed off their periods at random—they have worked with the greatest care, correcting and re-correcting, both in manuscript and in proof; or have carefully put their sentences together, before placing them on paper. But this repeated correction is possible only where there is a large store to draw from; the man of one word must always say the same thing in the same way—hence the necessity again of wide reading. This practice, then, of our best writers is the one, in principle, that I decidedly recommend.

Whatever power the pupil may have naturally, *that* must be brought out as much as possible; he should be left to himself, to write and speak just as

he thinks; the only condition imposed upon him should be of making his meaning clear; emphatically, he must have no *rules*, they are but fetters that bind the mind, or moulds into which thought, and expression, and mind, must be crushed and made shapeless things. It cannot be too urgently insisted upon, that Nature must be *free* in this respect, as in all others, if good is to be the result. Rambling and unconnected enough will be the first efforts; but under the care of the judicious teacher, this will in time be corrected.

Most of the elaborate works on "Composition" are not worth the paper they are printed on; the little work of Dr. Abbott, called "How to Write Clearly," is worth more than all the others I have ever met. It confines itself to giving specimens of bad English, indicating why they are bad; and shewing that in the main they violate the cardinal principle of all composition—the clear unambiguous transmission of thought from one mind to another;—or else that they involve some absurdity, readily perceived by everyone who has read much. These are not *rules*; they cannot be taught; an error cannot be picked out by rule; and if the pupil cannot perceive the error after his attention has been drawn to it, if he fails to see it, or *feel* it at once, no rule can make him see it in future; he *must know in himself* what the practice of the language is; and then, and not till then, will an error be obvious to him. This practice of the language can be made valuable only by wide reading. Hitherto our study of English has been upon a false principle. We have been studying it as if it were a foreign language, in which *rule* is a necessity—this is one of the vices bequeathed to us by the study of the Latin and Greek Classics.

I have said that a good style in writing cannot be imparted by rule, nor yet

from models set by the teacher—parsing and analysis being wholly left out of the question. But the teacher has much to do; his labour will not be light; involving wide reading on his part of general literature—the more extensive the better. The un-read teacher *cannot* teach English.

I have already pointed out, in the main, the course to be pursued. The pupil must be allowed to write just as he pleases, which will be just as he thinks—in his own language. The teacher must then go over the exercises, and make minor and verbal corrections; but any serious error—a badly worded, or badly arranged sentence—should not be corrected, but the pupil's attention be drawn to it, in a way best adapted to show him why it is an error, and then he must write it over again, better if he can. I have frequently selected from the exercises, or "compositions," some of the most characteristic or absurd mistakes, and written them on the black-board; indeed a whole composition has often been thus treated; and then I have called for criticisms. Rarely has it been necessary on my part to point out mistakes; some one in the class was sure to see or to feel them. Of course as the mistakes are often absurd, a great deal of amusement may thus be created, but no ill-feeling, if the teacher is careful by word or manner to make it evident that no ridicule is intended. The effect of this practice, I have found most telling. The method of dealing must naturally vary with the age of the pupil; but one principle should run throughout the whole. Get the pupil to write as he talks. If I take up the production of a little boy, I want to see the little boy all through, in language, style and thought—to see the teacher in such a case is simply absurd; no good can ever come from it. With advancing years and wider reading, the style of talking will change too; and frequent writing

will make the advancing knowledge of language available at any time, to be an instrument, with the use of which the owner is perfectly familiar.

It is thus that composition and the study of literature, in our schools, should go hand in hand. The imitation of the characteristic features of any writer is to be avoided, and this cannot be done if we confine our study to one author. A wide range must be taken, and from this a style natural to our pupils will be the result.

One word of caution to the teacher before closing. If we wish to *instruct* our pupils, we must be far ahead of them ourselves. Let us study, not our newspapers—often vicious in thought and word—dragged down by party hate and party hypocrisy, whose writers study only a condensed encyclopædia, or the columns of newspapers of their own stamp. Let us not study *these*, but let us read and study the *masters* of our language—those who write for fame, and who have won it.

A few words now on the teaching of poetry. I suppose our understanding must go along with us as we read it; I suppose we must know what is meant by the author, and that we must clearly see wherein verse differs from prose; that we must talk about figures of speech; that we must do several other things; and we may do them with an easy conscience, as violating nothing sacred. But I can appeal to you all, with the assurance of a hearty assent, if there are not occasions when one who has a spark of poetic fire, may *not* ask a question, or make a comment. Often, after reading a fine passage to my class, I have been compelled to sit silent for a time with downcast eyes till the effect has passed away, and then I have felt like a desecrator, like a profane person violating what was holy, when I have ventured to ask a question; and you all have felt as I have

done. No need at that time to exercise control in a class! *This* poetry, this that goes home to the soul *cannot* be taught by word, it is taught from heart to heart, we know not by what mysterious means.

I was lately reading to an intelligent elderly gentleman with an antiquarian turn of mind the beautiful poem of Tennyson's, the "Defence of Lucknow." When I was at the most heart-stirring part, he suddenly exclaimed "Well, I'm sure I didn't know that." I felt something choking me just then, but after a pause I read on.

The impossibility of the cool, matter-of-fact, critical faculty going along with the sympathetic mood, in which alone poetry can be appreciated, makes one feel that all attempts to put real poetry into prose, are simply destructive of poetry. This makes

one feel, too, that the teacher of Literature must know how to appreciate poetry, and must in a fair degree, know how to *read* it, so as to impress its delivery.

And now I must close. I have felt my subject grow beneath my hand, yet I have taken a much narrower range than I at first intended. I had wished to say something about examining in literature—to shew how our university examiners often fail to understand what literature is, and that their questions, often of the absurdest kind, are gleaned from the writings of critics, and not from an appreciative study of the authors themselves. I had wished, too, above all, to utter a protest against this employment of *analysis*—that detestable thing—in the study of poetry; but time has failed me, if your patience has not.

"HUMAN hearts are an element of which science takes sparing account; but they are a real interest at work for good or evil. Man, whether rich or poor, does not live on bread alone, but by the love of others for him, the interest of others in his welfare; and that state could not prosper, however superior to others in outward circumstances,—even though the poor as a class should cease to exist in it,—where no kindly influence or timely aid bound together man and man, life and life, heart and heart."

"A MAN'S first care should be to avoid the reproaches of his own heart; his next to escape the censures of the world. If the last interferes with the former, it ought to be entirely neglected; but otherwise there cannot be a greater satisfaction to an honest mind, than to see those approbations which it gives itself seconded by the applause of the public. A man is more sure of his conduct when the verdict which he passes upon his own behaviour is thus warranted and confirmed by the opinion of all that know him."

THE SCIENCE OF CONDUCT: ITS PLACE IN EDUCATION.*

BY R. WORMELL, D.SC., M.A.

THERE seems no end to the number of subjects we hear we are to teach. We have not decided whether to teach Classics, or Mathematics, the Natural Sciences, Art, Grammar, History, Music, and now we hear of a new science, that of Conduct. Many of us who take sides in the advocacy of the rival claims of these subjects, do not wish to see all our schools alike, or all our teachers giving equal prominence to the same subjects; but rather wish Science to carry the palm in some schools, Classics to form the principal study in others, and so on. In speaking, lately, with a gentleman from the continent, who had been inspecting and reporting on English schools, I asked him what advice his inspection had disposed him to give to English educators. He replied, "We have in Germany four types of schools only. You have almost every possible grade between the two extremes, and schools of the same grade with different methods. With us, individuality is neglected; with you, it has full play. If I presume to advise, I should say, you may secure efficiency, and at the same time keep your variety; don't imitate our dull uniformity." I felt that he had pointed out a feature peculiar to English education, and one which we ought to preserve, as agreeing most thoroughly with our national temperament and the liberty accorded by our other national institutions.

But, if I make out my case to-night, I think I shall plead the cause of a claimant for the best attention of teachers of all schools, of all grades,—a kind of knowledge which all should have, and which every teacher should know how to impart. It concerns all education, for it concerns all men and women.

Many are the definitions of education and general descriptions of the work of the educator, but this we may fairly state, that the end which all promoters of education wish it to secure is directly the good of society at large. The means by which this end has been sought have varied greatly. We are not yet agreed as to the methods to be pursued in education. We are still debating as to the kind of discipline to be enforced, the penalties to be inflicted, and the allurements to be offered. While few will doubt that education seeks to secure the common good, men have been, and are, far from agreed as to what that common good is. Such disagreement must lead to a doubt as to the conduct that ought to be encouraged, and consequently to doubt as to the character and habits which will dispose to it. It behoves teachers, above all men, to labour to remove this disagreement. Good must come from an attempt to bring order and definiteness into their thoughts and teaching on this subject. Although it is some good result to see the ready writer, the clever draftsman, the quick and correct arithmetician, the skilful seamstress, the clever cook,

*A paper read before the College of Preceptors, London; Prof. Croom Robertson in the chair.

and the well-informed maid, the end before the educator is not simply to secure these—for they may accompany a miserable and wasted life—it is to train those committed to his care, so that, if they live to rise up as members of a coming generation, they may be prepared so to act their part, that their course shall be peaceful to themselves and useful to others. Now, I wish to shew that there is a science, which will be a most powerful means in the hands of a good and earnest teacher, to equip the young student for active life, and arm him against temptation. It is a science that deals with the principles that regulate the movings and workings of society. Tangled and confused as these movements seem to be to a cursory observer, a firm grasp of some of the elementary principles that determine them, throws light and order into what otherwise appears darkness and confusion.

That I may not seem, however, to claim too much for the science whose advocate I am, I may make my notion of its purpose clear by an oft-used illustration. Everyone knows that a ship is provided, before it leaves port, with charts, and also with numerous instruments to assist the captain and crew to reach their destination in safety. A voyage must be very short where it is not necessary that a ship's course should be frequently altered to avoid rocks, sands, and other obstructions, all of which are marked on the chart. The chart of itself will not make the ship's course safe. It would be of small use if the captain were incapable of readily interpreting the marks traced upon it, and of profiting by the indications thereby obtained for steering his course. Both the captain and his officers must know how to use their charts and instruments. In addition to this knowledge, they must possess willingness and ability to act in all the emergencies

likely to await them from storms, fires, collisions, and other perils of the sea, and must be vigilant, sober, courageous, and indefatigable, as well to keep out of trouble as to get out of difficulties and dangers when they are unavoidable.

Now life has often been spoken of as a voyage—a voyage from birth to death—a voyage beset with dangers, fears, anxieties, sorrows, and suffering; but also interspersed with the pleasures of sympathy and affection, of hope, of exercise, and study, and of enjoyments secured by prudence and effort. Let us continue the figure, and ask what kind of a thing a chart of industrial life would be, and what sort of instruction would be required for its use. The science of Conduct is the chart of industrial life.

In studying the laws and regulations which it will be his duty to obey, the thoughtful mariner sees that the purpose of all these laws and regulations is to make navigation as effective as possible for all who frequent the deep—not for him only, nor for a few, but for all. And where each navigator is careful to understand and obey the rules prescribed for the good of all, each in reality enjoys as much advantage and suffers as little loss and hardship as can reasonably be expected in the profession to which he devotes himself.

In like manner, the science of Conduct, the chart of industrial life, prescribes the rules and regulations which it can be proved conduce to the general good—not to the good of one or a few. Nevertheless, not only every society as a whole, but also each individual in it, will prosper in proportion as these rules are generally understood and obeyed.

With the best of charts and the clearest of instructions, no captain must fancy that his own unaided qualifications suffice for his safe guidance in all circumstances and situa-

tions. He is at times dependent, for his safety or extrication from the perils of storm or fire, upon the assistance of others, who in their turn may have to rely upon him. In pilot waters, also, the most experienced navigators always seek the aid of pilots qualified to guide others by their special acquaintance with the intricacies of the channels, and with the lights, buoys, landmarks, and soundings of the narrow seas in which they ply. In like manner, the youth about to start to navigate the waters of life, will learn from the instructions associated with his chart that the co-operation of others is indispensable for his successful progress, and that he must strive to deserve so as to secure that co-operation whenever it is needed.

If, as is usual in treating of other sciences, we are called on to define our science, we may say that it treats of the methods for developing and perfecting the dispositions and attainments of men, as a means of securing conduct favourable to the well-being of each and all. But, some may say, we have heard of the Art of Good Living. Are you not speaking of an art, and not a science? Does not an art teach us to *do*, while a science teaches us to *know*? Is it not an art that turns knowledge to account? Now, order and consciousness, in the principles applied, characterize a science, but want of connexion and consequentness among the precepts, and unconsciousness in their application, are involved in art. Dr. Whewell distinguishes between them thus:—"The principles which art involves, science alone evolves. The truths on which the success of art depends, lurk in the artist's mind in an undeveloped state; guiding his hand, stimulating his invention, balancing his judgment, but not appearing in the form of enunciated propositions." Accepting this distinction, I hope soon

to make it clear to you that it is a science, and not an art, that we have in mind.

Look, for a moment, at the composition of a perfect science, such as Pure Geometry. From the pictures we see, we construct a world of things to fulfil a certain code of rules, called axioms or definitions. The system of reasoning on this code of rules is, and has been for twenty centuries, at once the inspiration and aspiration of scientific thought, its encouragement and guide. Encouragement, because the knowledge it contained was really known and could be relied on, and that, moreover, was growing in extent and application. The guide for the aim of every scientific student of every subject was to bring his knowledge of that subject into a form as perfect as that which Geometry had attained. "Far up on the great mountain of Truth, which all the sciences hope to scale, the foremost of the sacred sisterhood was seen beckoning the rest to follow her."* I claim a place on this mountain for the science of Conduct. She has suffered many vicissitudes, and has often ascended a short distance only to fall to the bottom. By keeping the foremost of the sisters in sight, and following in her course, she too may ascend so high as to be likewise the encouragement and guide of younger and weaker members of the sacred sisterhood.

But has she a firm foothold to start from? A little thought will convince us that she has. The cultivators of the earth are all desirous of making it yield the largest quantities of material for food and clothing. There have been men who, like Seneca, have said, "The wise man lives according to nature. Instead of attempting to add to the physical comforts of his species, he regrets that his

* Prof. W. K. Clifford.

lot was not cast in that golden age when the human race had no protection against the cold but a cavern." But such men may be classed with those whose words and conduct are not in harmony. Few are the men, even amongst the most ignorant and apathetic, who decline to make use of any of the modern resources placed within their reach; such, for example, as those that have originated in the laboratories of the chemist or the engineer. The only reason why men did not travel as rapidly formerly as now, did not communicate with each other, and transmit information to a distance, did not utilize the powers of heat, light, electricity, was—that they did not know how.

I will proceed to sketch, as briefly as possible, what I consider to be the prominent problems of the science of Conduct.

Let me remark at the outset, that we have in mind the training of the young for the business of life. The weaknesses, faults, and failings, exhibited by children at school, are generally typical of what may be observed in men and women who have not in childhood acquired the power of guarding against misconduct and error. In checking the faults of the child, we must endeavour to fortify him against more serious errors of the same kind in after life. We must not, therefore, base our correction on principles which may be afterwards rejected as fallacious. Again, we must, as teachers, respect the confidences that are placed in us by those who commit their children to our care. On both these grounds, therefore, the principles on which our science is to be based must be such as *all* observant and thoughtful men must necessarily accept. It will be no new thing in science to reason with such restrictions as these, for, in the science of pure Geometry, we, for certain reasons, limit the instru-

ments that shall be used in making the necessary constructions.

Axiomatic Principles.—1. We could not live at all without food, clothing, fuel, and shelter; nor with much enjoyment, unless provided with many other things essential for health and recreation.

2. Life, as much as possible, free from bodily suffering, trouble, self-reproach, the dislike or contempt of our fellows, alarm and anxiety, is wished for in common by us all.

3. The comfortable existence of as nearly all as possible, the admixture of the least possible suffering in the lot of life, is the end towards which the conduct of each ought to be directed.

Work and Industry.—Let us in the first place direct attention to the most obvious essentials of comfortable existence—food, clothing, fuel, shelter, etc.—say, the material essentials with which we are surrounded. We have a large store of those essentials—larger than existed in former times, but evidently not large enough adequately to supply the wants of all. If it were all suddenly destroyed, thousands of years must elapse before it could be replaced. The means of subsistence being taken away, the human race would perish, excepting that small remnant for whose support the spontaneous products of the earth might possibly suffice.

The history of our own country proves to us that for many years our store of the means of subsistence has been steadily increasing; and, as this store has increased, so also have the people increased in number. We are daily consuming the store which has been accumulated around us; and if we did nothing but consume, our store would gradually disappear, and we should perish. Later extinction would follow upon the gradual consumption of our store without its replacement, as certainly as early

extinction would follow upon its immediate destruction.

But what are men doing while the consumption of food and fuel, the wearing out of clothes and furniture, and the decay of houses, are in progress?

Even at this stage we can shew that they are doing many things, the main purpose of which is to replace, or to more than replace, what is consumed, and to preserve from decay that which with care may contribute to the comfort of the present and future generations.

When we wish to speak of all these doings of men without specifying what each is doing, we say, in one word, they "work." And if we were to ask why they work, the meaning of the answer would be,—whatever form of expression might be used,—to replace, or to more than replace, what is consumed.

A total suspension of work for a great length of time would be quickly followed by famine, disease, and death. Each individual who shirks some share in this work, or who works less effectively than he might, either throws upon others the labour which he shirks, or encroaches by his consumption upon the store in reserve for future subsistence.

All who have life consume; but all cannot work. The very young, the old, the infirm, either cannot work at all, or can do but little. They must be worked for. And when we reckon up the number who cannot work, we need not to be told what a nuisance to the community those must be who will not work, or who struggle to avoid their share of work.

The urgent call for work has been so keenly felt that a name implying approbation and esteem has been given to those who work zealously and cheerfully. We call them industrious; while those who work reluctantly are called idle or lazy.

It follows inevitably that, for the common good, all should be persuaded that it would be a disgrace to omit any effort by which they may take rank among the capable, who not only provide for their own maintenance, but contribute towards that of the helpless.

Gratitude and affection are due to parents—and children should be careful that they do not waste what is provided for them through the work of others.—These may easily be shewn to be necessary consequences of the considerations we have briefly sketched, connected with reflections on the helplessness of childhood, and the watchfulness and care that parents have to extend to children in early years to preserve them from harm. A careless use of the material essentials of well-being supplied by parents to their children hinders the accumulation of these essentials; and to cause grief, trouble, anxiety, loss of rest, to parents, is to diminish their power of work; while every effort to make home cheerful and happy, tends to preserve health and facilitate work.

Knowledge, intelligence, and skill must be united to industry, in order that we may be directed to secure the common good.—It is easy to shew how industry may be misapplied for want of knowledge. Again, the tools, implements, machinery and mechanical appliances in general, the locomotives, railroads, and ships, are the products of previous labour. The fruits of the observations, experiments, studies, and persistent industry of our forefathers through many generations.

The knowledge and skill needful to invent and contrive these aids to industry, to replace and improve upon them when they are worn out, to keep them in repair and to use them efficiently, have to be acquired by each generation.

A part of that large mass of knowledge, together with the capacity of

applying it, ought to be possessed by every adult; but other parts need only to be possessed by a few, provided that each portion of the knowledge is attended to, and thoroughly mastered by some.

Necessity for Education.—The labour of adults, however, could never be applied with intelligence and skill if their latent powers of observation, experiment, memory, and reflection were not called forth, exercised, strengthened, and guided in infancy, childhood, and youth.

We must regard the incapacity of some we see about us rather as a misfortune to which they have been subjected by others, than as a fault of their own, for they have never had the opportunities of education.

To learn is a very early duty in the order of time, and it is no less early in the order of importance; since industry without knowledge and skill would avail but little in replacing those stores which must be consumed for our daily subsistence.

Obedience is due from children to their parents and teachers.—Knowledge is required to guide the young in obtaining education. This knowledge, like the necessities of life, has to be supplied by parents. Food supplied by parents must be eaten, and clothes be worn; and, similarly, the direction of parents, and of those whom parents call upon to aid them in the education of their children, must be willingly obeyed. We have seen that gratitude and affection of children to parents ought to be accorded throughout life, and we now see that obedience to parents and teachers is required of those who would become thoroughly capable men and women.

Charity and Benevolence.—We see about us many arrangements made to provide the necessities of life to those who cannot provide them for themselves. Orphans, the sick, the

afflicted, the destitute, the incapable, are not left to die of cold and hunger. How do we account for the institutions provided to prevent death and alleviate suffering in these cases. Their existence implies that feelings of kindliness, of good-will and compassion, of distress at the sufferings of others, prevail generally.

The fruits of industry are indispensable for a state of existence that can be considered at all worth having, and no less indispensable for such a state of existence is the prevalence of those feelings of sympathy, kindliness, pity, friendship, and love, which inspire us with the courage, determination, and self-devotion to provide for the helpless, to assist those in danger or peril, to suffer privation, endure hardship, and even to meet wounds and death with resignation, for the benefit of others. It is easy to shew, therefore, that if society is to attain the highest possible state of well-being, its members everywhere must be animated by such feelings as the following:—Sensitiveness to the suffering of others—consciousness from the beginning that pain and privation are the lot of some portion of mankind, and that, for the general welfare of society, it ought to be the inclination and effort of the comparatively unafflicted portion to comfort and relieve the afflicted. The work of contributing to the utmost to the maintenance and increase of the general store of wealth ought to be crowned by the wish and the effort so to apply wealth, and bestow services, as to ward off avoidable suffering, and minister to the consolation of the unavoidable. Other qualities, such as those which go by the names of charity, benevolence, courage, patriotism, heroism, and humanity, cannot be dispensed with. These are the qualities that impel those who are well to help the ailing, the strong to help the weak, and lead men generally to strive to feed and

clothe and shelter the destitute, to lend the use of their senses to the blind, the deaf, and the dumb, to save from fire and shipwreck, to watch over and tend the insane and imbecile, and to beat off the spoiler and invader. We may often see these duties performed, as they ought to be, not merely without repining, but with intense satisfaction. Intelligence must be associated with these qualities to prevent their becoming engines of mischief rather than of good to society. The exhortation to "do your duty and fear not" is most admirable, but it should be preceded or accompanied by the exhortation to learn so as to know what duty is, lest, with the best intentions, evil, not good, should follow. By connected and incontrovertible reasoning from our first principles respecting what men are doing about us, and what are the consequences of their actions, we are obliged to conclude that the thoughts and dispositions of a good man lead him to seek his own happiness, by promoting, as far as possible, and never impairing that general state of happiness of which each is to have a share. History and biography will furnish us with many a noble life, the contemplation of which will assist in forming these conclusions.

Good-will towards others.—Few amongst us have not learnt what an additional charm is imparted to existence by the society of agreeable companions. Neither boy nor man can expect enjoyment from this source, unless he be welcome as a companion to others. As we must work and learn in order to live, so we must study to give pleasure to others to attract to ourselves their good-will. Amiable deportment, courtesy, and politeness are chiefly esteemed as being the outward expressions of kindness and readiness to serve and please others. We are clearly not constituted to lead lives of solitude. We cannot dispense

with society. Exclusion from it would be terrible. Our progress through life brings us repeatedly in contact with others, some to whom we are strongly attached—with whom we are closely connected—and others to whom we are comparatively strangers. Mutual good-will is desirable for our common happiness. If we ask what each can best do to bring about this state of mutual good-will, the answer ought to be, "Cherish such feelings in ourselves. Others are mostly beyond our direct control. But if we begin in early years and in earnest, we may control our own deportment and conduct, and thus acquire some indirect influence over the deportment and conduct of others." But, in order that kindness of feeling and courtesy of manners and expression may bear fruit in conduct, and save from the reproach of insincerity, we must labour and learn that we may acquire habits of industry and intelligence.

Economy and Thrift.—To consume is indispensable for present comfort. To consume judiciously, to consume with a due regard for the future, or to save, is indispensable for future comfort, and is at least a part of the practice of good living.

We might give many examples of what saving has done, is doing, and may do, when combined with other good conduct, for the advancement of general well-being.

It may do much more than it has yet done or is doing. But to enable it to do this, industry and intelligence must co-operate with it.

When a man has acquired the habit of saving, of being constantly prepared to forego a present indulgence for the sake of a greater future enjoyment, or to ward off future suffering, we call him a saving or economical man, and we say that he possesses the quality of economy. We can have no hesitation in enumerating this quality amongst the virtues, inasmuch as its

prevalence is indispensable for individual and national well-being; and also among the conditions of industrial success, since, without its aid, industry, knowledge, and skill will be comparatively powerless.

The Effect of Habit.—It is not enough to *wish* to grow up into industrious, intelligent, and skilful men, capable of foregoing so much of material indulgence as is indispensable for the due performance of our duty towards others, in the present and in the future. Something more than wishing is required. We must work as well as wish. Every day our efforts are delayed our task is more difficult, our success more doubtful. Men have been aptly described as “creatures of habit.” Impulse and habit, sometimes with, but frequently without, reflection at the moment, determine our conduct. We may trace the effects of habit in the careers of both good and bad men. As soon, therefore, as we become capable of learning from our parents and teachers, or recognizing what it is our duty to do, self-discipline should begin—efforts should be made to form our own habits and regulate our own impulses.

Temptation.—From the outset we are thrown into a society not entirely inspired with these views and sentiments, and are surrounded by fellow-men, among whom are some ill-disposed—intent upon anything rather than contributing to the well-being of the community of which they are members. We are all, the young particularly, prone to imitate, and to be influenced for good and evil by companionship. Strength of character must be our safeguard against those allurements, blandishments, and seductions, which lead not to happiness, but to perdition.

Rights of Property, and respect for Laws.—While most men are engaged in replacing what is consumed, a few strive to obtain by force and fraud

what others produce. Such individuals, disposed to prey on others, cannot be tolerated, hence force is organized to prevent it. The determination of men to resist depredation has given rise to laws, and to officials to administer and enforce them. It is necessary that rules or laws should clearly declare those who are to be held the legal possessors; and, while causes which have produced inequality of possession are often too remote and obscure to be traced, yet there are some causes which are easily traceable, and which are sufficient to reproduce these inequalities, if they could be destroyed. Some men are industrious, skilful, intelligent, and thrifty; others lazy, unskilful, ignorant, and wasteful. To which class shall we look to find the possessor of property, and to which for the destitute? The careers of many of our eminent engineers, architects, surgeons, physicians, lawyers, administrators, contrasted with those of some spendthrifts, enforce the conviction that we must look to the former to find those who are on their way to become possessors of property, and to the latter for those who are on their way to destitution.

The means or the power upon which we rely for our protection against those who would prey upon society is, in many respects, the same in all countries. We may call it the government. Under it are the police or civil force, which controls the conduct of citizen to citizen within the commonwealth, or of subject to subject within the kingdom; and the military and naval forces, which defend the community against aggression from without.

The reasons why rights to property have been conferred are plain. All inducements to useful exertion and abstinence would be taken away if producers felt that they were to be deprived of their wealth, whether by fraud or violence. The law says to

producers, "Work, and you shall be protected in the enjoyment of the fruits of your industry." And it says to those who would help themselves to the wealth of another against his will,—“You are forbidden; and, if you make the attempt, you shall, if possible, be prevented; and if you break the laws in spite of the precautions taken against you, imprisonment shall prevent repetitions of your offence, and deter others from following your example in breaking the law.” Acts contrary to law and in defiance of government authorities are called crimes. Obedience to law is required from all. But while the well-disposed obey willingly, the ill-disposed submit through compulsion or fear. The well-disposed supply the wealth which is required for government establishments and the administration of the laws, because they know that if people were not allowed to enjoy the wealth which they have produced, a state of existence deserving to be called a state of well-being would be unattainable; and because they have grown up in the habit of cherishing thoughts and guiding their conduct in harmony with their conceptions of the duty which they owe to others. Their duty to others also urges them to concur in the measures of repression needful to protect property against the attacks of those who are not disposed to respect the possessions of others.

When ought people to begin to feel respect for property, or in other words, to be honest? From the beginning. Habits of respect for property should be cultivated simultaneously with habits of obedience.

Relations of Employer and Employed.—The term *wealth* is a convenient word to use for the products of work or industry, and the word *capital* is applied to that portion of wealth which is appropriated to the production of more wealth. The

larger part of existing wealth is in a form which requires further labour to be expended upon it to fit it for use or consumption. There is an attraction between the possessors of wealth and the possessors of a faculty of so dealing with wealth as to make it of direct use to the community. Wealth is required to enable labourers to subsist while this work is being performed; and labour is required to maintain and increase the store of wealth which, without the co-operation of labourers, would disappear by consumption and decay. This mutual attraction has from time immemorial drawn together the possessors of wealth and capable workers, capitalists and labourers, employers and employed. This attraction cannot fail to act in the future, and most important lessons are learnt from this relationship.

So great has been found the convenience of buying and selling services, that many of those who sell their own, in their turn, buy the services of others. Thus employer and employed become intermixed in the same person. The custom of a number of persons uniting their capital, that better results may follow from its use, also leads the same person to appear as capitalist sharing in profits in one relation, and labourer receiving wages in another. In spite of the great inequalities of possessions, the opportunities for selling labour remove from individuals all apprehension of suffering from privation or destitution, provided their labour be worth buying.

Fidelity in performing engagements.

—A contract, expressed or understood, is entered into between employers and employed. We may easily shew how desirable it is for the sake of both parties, and for the good of society, that people should be willing to engage in such contracts. And they can be willing to engage in them

only in the conviction that it is intended to perform them. Hence, honesty of disposition, or determination of purpose faithfully to perform engagements, must be added to the other qualifications to justify the expectation of a satisfactory state of society, or of any of us sharing in such a state.

One who hopes to find a purchaser of his services or labour must inspire the possessor of wealth to whom he applies with a reasonable hope that his services are worth buying, or will speedily become so, and in order that the possessor of wealth may induce others to render him the services he needs he must inspire them with confidence that he is both able and willing to compensate the workers for their services out of his wealth. By reflections such as these we are led to the conclusion that trustworthiness, or scrupulousness in making contracts and fidelity in performing them, must prevail widely wherever a high state of happiness is to be enjoyed. Here, again, we must consider the effect of habit; the love of truth and habits of truthfulness must be cultivated in childhood.

The exertions of possessors of property to preserve and increase the store destined to supply the wants of the future deserve commendation as well as the industry of the labourer. It is right and proper that the man who benefits the community should at the same time benefit himself. When wealth is acquired by fraud, or by means savouring of fraud, it is the fraudulent, not the wealthy man, who ought to be reprobated. The possessor of well-gotten wealth never deserves censure because he possesses wealth and increases it, but he may deserve censure because he countenances or promotes bad habits and conduct, or does less than he might do for the cultivation and encouragement of their opposites.

Division of Labour.—It is important here to work out the need for and the consequence of division of labour. The first conclusion is, that the qualities we have found to be essential to general well-being must be possessed by all, whatever part of the work of production they perform, whether they be teachers or taught, employers or employed, capitalists, organizers, bankers, and bankers' clerks, protectors of the community against depredators, those who protect rights and enforce the fulfilment of obligations, makers and administrators of the law, etc.

Again, besides opening to us means and opportunities of producing many things which would otherwise be beyond our reach, and all things in greater abundance and of better quality, division of labour enables us so to portion our different kinds of work as to adapt them to every kind of capacity.

Varieties of tastes, talents, temperaments, and disposition may all be consulted within certain limits, prescribed by the sense of duty which ought invariably to direct and dominate.

Time will not permit me to fill up all the steps in the reasoning, or to sketch the whole of the science as far as it can be at present carried. When we consider the earning and sharing of profits, the obligations of borrowers and lenders, the principles of exchange made necessary by the division of labour, our previous conclusions are confirmed, and we see how indispensable for the welfare of the community it is that honesty, just dealing, and good faith, agreement and harmony between words and conduct, as well as intelligence, should prevail; at the same time we confirm our condemnation of such faults as unpunctuality, breaches of contract, waste of labour and capital, insolvency, etc., and we are able to trace

the misery and suffering which follow in their train. As we proceed we shall find that much conduct which even some men who are considered educated men approve, when examined by the light of our principles, proves to be wrong, and to produce unhappy effects. We shall find, also, that, from a want of knowledge of the consequences which we have traced, efforts to avert suffering are frequently misdirected, and only aggravate what they are intended to remedy.

But the first steps will be to learn that, for men to live at all on this earth, they must work ; to live decently and comfortably they must work diligently, intelligently, and skilfully. Intelligent work is impossible without knowledge ; knowledge is not to be had without the desire, accompanied by application, to get it. The desire and application are thoughts and habits to be formed and fostered in childhood, first by the affectionate care of others, and afterwards by self-discipline. The pursuit of knowledge thus commenced ripens into one of the most intense of our pleasures, while it is providing against immunity from suffering in the future.

Important as these subjects are in themselves, they assume a greater importance on account of the use of the science of conduct in a particular educational method—I mean that sharpening of the wits that is known as the Socratic method.* This method applies in education to two kinds of science—one in which every question is accompanied by a practical scientific experiment from which, by simple observation, the answer can be

derived ; the other, the sciences which are based on operations and actions that are universally going on around us, and respecting which all persons have some knowledge. Of the latter kind is our science. I do not attempt originality in describing it. This would be dangerous with such a subject, but, on the other hand, I raise no party banner.

What I know of this subject I have learnt from my friend, Mr. W. Ellis, who has thought over it for many years, and whose teaching it has been my privilege to listen to when I commenced my own work as a teacher, and on many subsequent occasions. The name of Mr. William Ellis is mentioned by Professor Bain in his work "Education as a Science," as distinguished in this department of knowledge, but as the science he has taught is included by the Professor amongst those that "cannot be accounted sciences of method, discipline or training," it seemed to me that the Professor did not comprehend the full use of this science in cultivated observation and reason, as it has been taught by Mr. William Ellis, in his philanthropic labours. Chiefly on this account I have ventured to bring this subject before you to-night.

Here I must conclude. I have only just approached what I feel it is my special province, as a practical teacher, to say ; but I thank you for your patient attention, and, if you will allow me, I will undertake, on a future occasion, to shew more particularly how these principles may be used to correct the faults that are brought to our notice in our school children, and by their means to strengthen our children to resist temptation to misconduct and error in the future.—*Educational Times.*

* Here the lecturer read, by way of illustration, a dialogue between Meno and Socrates, on "What is Virtue?" and then a lesson on the subject of the lecture, consisting entirely of simple questions and answers.

ARTS DEPARTMENT.

ARCHIBALD MACMURCHY, M.A., MATHEMATICAL EDITOR, C. E. M.

The solutions are by Messrs. MacMurchy and Barton, University College, Toronto.

Our correspondents will please bear in mind, that the arranging of the matter for the printer is greatly facilitated when they kindly write out their contributions, intended for insertion, on one side of the paper ONLY, or so that each distinct answer or subject may admit of an easy separation from other matter without the necessity of having it re-written.

SOLUTIONS.

42. ABC is any $\triangle$ inscribed in a $\bigcirc$ $ABEC$, of which AE is a diameter. AQ bisects $\angle$ between AE and the $\perp$ from A on base BC ; shew $\angle BAC = \angle$ subtended by arc CQ at centre of $\bigcirc$.

Take centre of $\bigcirc =$

$$\begin{aligned}\angle QOE &= 2 \angle QAE = 2 \angle QAD \\ &= \angle QAE + \angle QAD = \angle DAE. \\ \angle EOC &= 2 \angle OAC.\end{aligned}$$

Join EC ; then $\angle ECA$ is a rt. $\angle$, and

$$\angle AEC = \angle CBA;$$

$\therefore \triangle s EAC, ABD$ are equiangular, i.e., $\angle BAD = \angle EAC$.

$$\text{But } \angle EOC = 2 \angle EAC;$$

$$\therefore \angle EOC = \angle EAC + \angle BAD.$$

$$\text{Hence } \angle QOC = \angle BAC.$$

45. Let it be required to inscribe in ABC a $\triangle$ similar to DEF .

Let ABC and DEF be so placed in the same plane that no side of the one may be parallel to any side of the other. Describe $\triangle NKM$ round DEF by drawing through D, KM parallel to AC , etc. Then if we divide AC, AB, BC at R, S and T proportionally to DK, DM, KF, NF , etc., and join SRT , it is easy to shew $\triangle SRT$ is similar to FDE .

52. Prove analytically (1) angle in a semi-circle is a right angle; (2) angles in the same segment of a circle are equal.

(1) Let APB be a semicircle, AB a diameter the axis of x , A origin, P any point in circumference.

$$y^2 = 2ax - x^2, \text{ equation to circle.}$$

Let $y = mx$ be equation to AP ; then at

$$\text{point } P, x = \frac{2a}{1+m^2}, y = \frac{2am}{1+m^2},$$

$$\therefore \text{ equation to } BP \text{ is } y = -\frac{1}{m}(x-2a).$$

$\therefore BP$ is perpendicular to AP .

(2) Same figure as (1).

Let equation to circle be $x^2 + y^2 = ax + a^2$. A origin, then $AB = a$. Let P be any point $x'y'$ in circumference.

$$\tan APB = -\tan(PAB + PBA)$$

$$\begin{aligned}&= -\frac{\left(\frac{y'}{x'} + \frac{y'}{a-x'}\right)}{1 - \frac{y'^2}{x'(a-x')}} = -\frac{a}{b}.\end{aligned}$$

$\therefore$ angle $APB = \tan^{-1} \frac{a}{b}$, which is independent of position of P .

53. An ellipse and hyperbola that have the same foci and centre, will cut one another at right angles.

$$\text{Let } \frac{x^2}{a^2} + \frac{y^2}{b^2} = 1 \text{ be equation to ellipse,}$$

$$\text{and } \frac{x^2}{a'^2} - \frac{y^2}{b'^2} = 1 \text{ be equation to hyperbola}$$

$$\therefore CS^2 = a^2 - b^2 = a'^2 - b'^2.$$

At points of intersection

$$\left(\frac{1}{a^2} - \frac{1}{a'^2}\right)x^2 + \left(\frac{1}{b^2} - \frac{1}{b'^2}\right)y^2 = 0$$

$$\therefore \frac{x^2}{y^2} = \left(\frac{aa'}{bb'}\right)^2.$$

Now, if θ, θ' be angles which tangents at points of intersection make, with axis of x

$$\tan \theta \tan \theta' = -\left(\frac{bb'x}{aa'y}\right)^2$$

$\therefore \tan \theta \tan \theta' = -1$, or tangents at points of intersection are at right angles.

60. Prove sum of products of 1st n natural numbers taken two and two together

$$\frac{n \cdot (n-1) \cdot (n+1) \cdot (3n+2)}{24}$$

We have, denoting required sum by S ,
 $(a+b+c+d+\dots \text{ to } n \text{ terms})^2 = a^2 + b^2 + c^2 + \dots$
 $+ 2(ab+ac+\dots)$

Put $a=1, b=2, c=3$, etc.,

$$\therefore 2S = \left(\frac{n \cdot (n+1)}{2} \right)^2 - \frac{n \cdot (n+1) \cdot (2n+1)}{2 \cdot 3}$$

$$\therefore S = \frac{(n-1) \cdot n \cdot (n+1) \cdot (3n+2)}{24}$$

61. Shew that the remainder after n terms of the expansion of $(1-x)^{-2}$ is

$$\frac{(n+1)x^n - nx^{n+1}}{(1-x)^2}$$

$$(1-x)^{-2} = 1 + 2x + 3x^2 + \dots + (n+1)x^n + \dots$$

$$\text{Let } S = 1 + 2x + 3x^2 + \dots + nx^{n-1},$$

$$\therefore Sx = x + 2x^2 + \dots + (n-1)x^{n-1} + nx^n,$$

$$\therefore S = \frac{1-x^{n+1}}{(1-x)^2} - \frac{nx^{n+1}}{1-x}$$

$$\therefore \text{remainder} = (1-x)^{-2} - S = \frac{(n+1)x^n - nx^{n+1}}{(1-x)^2}$$

62. The sum of the first $r+1$ coefficients

$$\text{of the expansion of } (1-x)^{-m} \text{ is } \frac{\left| \begin{smallmatrix} m+r \\ m \end{smallmatrix} \right| r}{m}$$

being a positive integer.

$$-x)^{-m} = 1 + c_1 x + c_2 x^2 + \dots + c_r x^r + \dots$$

$$-x)^{-1} = 1 + x + x^2 + \dots + x^r + \dots$$

$\therefore$ required sum equals coefficient of x^r in $-x)^{-m+1}$.

$$= \frac{(m+1)(m+2)\dots(m+r)}{\left| \begin{smallmatrix} r \\ r \end{smallmatrix} \right|}$$

$$= \frac{\left| \begin{smallmatrix} m+r \\ m \end{smallmatrix} \right| r}{\left| \begin{smallmatrix} m \\ m \end{smallmatrix} \right| r}$$

67. Three circles are so inscribed in a triangle that each touches the other two and two sides of the triangle; prove radius of one of which touches sides AB, AC is

$$\frac{r}{2} \left\{ \frac{\left(1 + \tan \frac{B}{4}\right) \left(1 + \tan \frac{C}{4}\right)}{\left(1 + \tan \frac{A}{4}\right)} \right\}$$

Let circles whose centres are O_2, O_3 touch side BC in a_2, a_1 respectively, and also touch each other and sides AC, AB respectively,

and circle centre O_1 touch the other two circles and sides AB, AC .

Then r, r_1, r_2, r_3 , denoting radii of inscribed circle of triangle ABC , and of above circles, we have

$$O_2 O_3 = r_2 + r_3, \sqrt{\{(r_2 + r_3)^2 - (r_2 - r_3)^2\}}$$

$$= a_1 a_2 = 2\sqrt{r_2 r_3},$$

$$\therefore BC = a = r_2 \cot \frac{B}{2} + r_3 \cot \frac{C}{2} + 2\sqrt{r_2 r_3},$$

$$= r \left(\cot \frac{B}{2} + \cot \frac{C}{2} \right).$$

$$\text{anal} = \text{anal}.$$

$$\therefore r_3 \cot \frac{C}{2} + r_1 \cot \frac{A}{2} + 2\sqrt{r_1 r_3}$$

$$= r \left(\cot \frac{C}{2} + \cot \frac{A}{2} \right) \quad (I)$$

$$\text{anal} = \text{anal}.$$

$$\text{whence } \sqrt{r_1} \cos \frac{A}{2} + \sqrt{r_3} \sin \frac{A}{2}$$

$$= \sqrt{r_2} \cos \frac{B}{2} + \sqrt{r_3} \sin \frac{B}{2}$$

$$\text{anal} = \text{anal}.$$

$$\text{whence } \sqrt{r_1} \left(\cos \frac{A}{2} + \sin \frac{B}{2} - \sin \frac{C}{2} \right)$$

$$= \sqrt{r_3} \left(\cos \frac{C}{2} + \sin \frac{B}{2} - \sin \frac{A}{2} \right).$$

$$\therefore \frac{r_1}{r_3} = \left\{ \frac{1 + \tan \frac{C}{4}}{1 + \tan \frac{A}{4}} \right\}^2$$

Substituting in (I) and reducing, required expression is obtained.

68. If $\frac{a+cx}{c+ax}$ be expanded in a series ascending by powers of $(1-x)$ and $(1+x)$, and A, B be the coefficients of $(1-x)^{n+1}$ and $(1+x)^{n+1}$ respectively; then

$$\frac{A}{B} = \pm \left(\frac{c-a}{c+a} \right)^{n+1}$$

$\pm$ according as n is even or odd.

$$\frac{a+cx}{c+ax}$$

$$= \left(\frac{c+ax}{a+cx} \right)^{-1} = \left\{ 1 + \frac{(c-a)(1-x)}{a+cx} \right\}^{-1} \quad (I)$$

$$= \left(\frac{c+ax}{a+cx} \right)^{-1} = - \left\{ 1 - \frac{(c+a)(1+x)}{a+cx} \right\}^{-1} \quad (2)$$

Expanding the above by Binomial Theorem we obtain required result.

EDUCATION DEPARTMENT, ONTARIO.

December Examinations, 1879.

ADMISSION TO HIGH SCHOOLS.

GEOGRAPHY.

1. Define meridian, watershed, bay, frith and zone.

2. What and where are Arthabasca, Nelson, Chignecto, Restigouche, Gatineau, Temiscaming, St. Hyacinthe, Quinté, Chesapeake, Sacramento, Champlain and New Orleans?

3. Where do you find the following natural productions in greatest abundance:—Cotton, copper, coal, coffee, tin, gold, furs and grapes?

4. Say you embark at the Isle of Man on a voyage to the mouth of the Volga. Through what waters, and near what capes and islands would you pass?

5. Draw a map of the coast of Asia from Behring's Straits to Cape Comorin, showing all the important physical features, with their names neatly printed upon them.

6. Locate the following:—Obi, Papua, Zambezi, Tunis, Morea, Cyprus, Venice, Lyons, Copenhagen, Borneo, Cheviot Hills, Crimea, Quito, Port-au-Prince, Trinidad and Lofoden.

COMPOSITION.

1. Make a simple sentence upon each of the following words:—Crocodile, flower, railway, Nelson, truth, temperance, chirp, tremble, conquer, besiege, fierce, candid.

2. Combine into a single sentence—A crow had seized a piece of cheese. It flew up into a high tree. It quietly prepared to enjoy its repast.

3. Arrange each of the following sentences correctly:—

Wolsey left at his death many buildings which he had begun, in an unfinished state.

It is folly to pretend to protect ourselves against the accidents of life by heaping

up treasures, which nothing can guard against.

A romantic village was situated on the slope, composed of ten or a dozen neat cottages.

4. Improve the following sentences by avoiding the repetition of related words:—

The abilities, as well as the virtues, of King Alfred justly entitled him to the title of the Great.

Wellington was anxious to be relieved from all anxiety in that quarter.

5. Render into good English—

A fox was passing through a vineyard and so he saw some fine bunches of grapes on one of the trees; so he tried to reach one of them, but it hung very high and he could not get it.

Nothing is more effectual as a destroying agency no means so sure as that of time.

6. Combine the following sentences so as to form a connected narrative:

Two young bears left their native wood. They came to a bee-hive. The bee-hive was well stored with honey. They were delighted with their discovery. They hastily overturned it. They began to eat voraciously. The bees were not to be deprived of the fruits of their labour with impunity. They flew about the bears. They stung them severely in the ears. They stung them severely in the eyes. The bears endeavoured in vain to repel the attacks of their nimble foes. They were at last forced to retreat to the wood. They were maddened with the pain. They were blinded with rage. Their sufferings at last subsided. They had leisure to reflect upon their conduct. They lamented their folly. They resolved to profit by their sad experience. Pleasure is often bought with pain.

7. Tell the following in prose:—

In Grecian annals it remained untold, But may be read in Eastern legend old, How, when great Alexander died, he bade That his two hands uncovered might be laid Outside the bier, for men therewith to see— Men who had seen him in his majesty—

That he had gone the common way of all,
And nothing now his own in death might call;
Nor of the treasures of two empires aught
Within those empty hands unto the grave
had brought.

ENGLISH GRAMMAR.

1. *Define*—Comparative Degree, Conjunction, Gender, Participle, Relative Pronoun and Subjunctive Mood.

2. *Parse*—“The Spaniards employed coastguards to keep off interlopers, the commanders of which were instructed to massacre all their prisoners.”

3. *Analyse*—“After the banquet, a shower of scented water, scattered from invisible pipes, spread perfume over the apartment.”

4. Correct the following, and give reasons for making the changes necessary:—

(a). I am not sure but what it is right.

(b). I will not go, except you promise to come too.

(c). He is more cleverer than any one I ever seen.

5. Give the past participle of *go*, *have*, *lay* (to place) and *drink*; the feminine of *earl*, *stag* and *miser*; the plural of *medium*, *madame*, *wharf* and *scarf*; and the possessive plural of *mechanic* and *lady*.

6. (a). Give six rules for the use of capital letters.

(b). Inflect *which*.

(c). Inflect *to see*, in the future passive indicative.

ARITHMETIC.

1. A man has 703 ac. 3 roods 22 sq. rods 14¼ sq. yds.; after selling 19 ac. 1 rood 30 sq. rods 2¼ sq. yds., among how many persons can he divide the remainder so that each person may receive 45 ac. 2 roods 20 sq. rods 25 sq. yards?

2. Find the price of digging a cellar 41 ft. 3 in. long, 24 feet wide and 6 feet deep, at 20 cents per cubic yard.

3. The fore wheel of a waggon is 10½ ft. in circumference, and turns 440 times more than the hind wheel, which is 11½ ft. in

circumference; find the distance travelled over in feet.

$$4. \frac{3\frac{1}{3} - 1\frac{1}{6} \text{ of } \frac{1}{10} + 8}{\frac{1}{2}(8\frac{1}{2} + 3\frac{5}{6} - \frac{1}{2} + 3\frac{2}{3})} \div \frac{.05 - .005}{.25 \div .5}$$

5. Find the total cost of the following:—
2745 lbs. of wheat at \$1.20 per bush.

867 “ “ oats “ 35c. “ “

1936 “ “ barley “ 60c. “ “

1650 “ “ hay “ \$8.00 “ ton.

2675 feet of lumber at \$10 per 1000 feet.

6. If, when wheat sells at 90 cents per bush., a 4 lb. loaf of bread sells for 10 cents, what should be the price of a 3 lb. loaf when wheat has advanced 45 cents in price?

7. At what price must I mark cloth which cost me \$2.40 per yard, so that after throwing off ¼ of the marked price I may sell it at ¼ more than the cost price?

FOURTH BOOK AND SPELLING.

1. Tell what you know about the founding of English colonies in North America in the seventeenth century.

2. “They threw themselves at the feet of Columbus with feelings of self-condemnation mingled with reverence. They implored him to pardon their ignorance, incredulity and insolence, which had created him so much unnecessary disquiet, and had so often obstructed the prosecution of his well-concerted plan; and passing, in the warmth of their admiration, from one extreme to another, they now pronounced the man whom they had so lately reviled and threatened to be a person inspired by Heaven with sagacity and fortitude more than human, in order to accomplish a design so far beyond the ideas and conception of all former ages.”—ROBERTSON—*The Discovery of America*.

(i.) In what year was America discovered by Columbus? In whose service was he at the time, and how many vessels did he have with him?

(ii.) What part of America did he first discover?

(iii.) Explain the meaning in which ‘implored’, ‘incredulity’, ‘prosecution’, ‘well-concerted’, ‘reviled’, ‘inspired’, ‘Heaven’,

'sagacity', 'fortitude', 'conception', 'ages', are used in the passage.

(iv.) *Created him so much unnecessary disquiet.* To what does this refer? What was 'his well-concerted plan'?

(v.) *From one extreme to another*—What were the two extremes?

(vi.) *More than human*—What is understood after 'human'?

3. "The Red Man came,
The roaming hunter tribes, warlike and fierce,
And the Mound-builders vanished from the earth.

The solitude of centuries untold
Has settled where they dwelt. The prairie-wolf

Hunts in their meadows, and his fresh-dug den
Yawns by my path. The gopher mines the ground

Where stood their swarming cities. All is gone;
All,—save the piles of earth that hold their bones,

The platforms where they worshipped unknown gods,

The barriers which they builded from the soil
To keep the foe at bay, till o'er the walls
The wild beleaguers broke, and, one by one,
The strongholds of the plain were forced,
and heaped with corpses."

—BRYANT—*The Prairies.*

(i.) *The solitude of centuries untold.*—Explain the meaning of *untold*. Parse it.

(ii.) Explain the meaning in which 'yawn'; 'swarming', 'beleaguers', and 'forced' are used in this passage.

(iii.) What is meant by 'keep the foe at bay' and 'the strongholds of the plain'? Who, according to Bryant, were the foe?

(iv.) What is the gopher!

(v.) Point out the silent letters in—

"The roaming hunter tribes, warlike and fierce";

And in—

"The platforms where they worshipped unknown gods."

What final letter in the latter of these lines has a sound different from that which it usually has?

4. What is the difference in meaning between

pine, the noun, and pine, the verb?

rue, " , and rue "

crew, " , and crew "

mean, " , and mean, "

fare, " , and fare, "

row, " , and row, "

rail, " , and rail, "

hail, " , and hail, "

ward, " , and ward, "

blow, " , and blow, "

mow, " , and mow, "

peer, " , and peer. "

ENGLISH HISTORY.

1. Tell how the Roman conquest of England was brought about, and what were the principal changes effected by it in England?

2. Why is the reign of King John a very important period of English History? Explain fully.

3. Give an account of the public life of Oliver Cromwell.

4. Tell what is meant by the Revolution, the Restoration, the Reformation, the Parliament.

5. Why is the power of the Sovereign now less than it was three centuries ago?

6. Tell the principal events of the reign of George III.

TIME TABLE OF THE EXAMINATION.

Tuesday, December 16th, 1879.

9 A.M. to 10:30 A.M. Geography.

10:45 A.M. to 12 M. Composition.

2 P.M. to 4 P.M. Grammar.

Wednesday, December 17th.

9 A.M. to 11 A.M. Arithmetic.

11:10 A.M. to 11:30 A.M. Dictation.

1:30 P. M. to 3 P.M. Fourth Book and Spelling.

3:10 P. M. to 4:40 P.M. History.

Reading and Writing are to be taken on Tuesday.

CONTEMPORARY OPINION ON EDUCATIONAL TOPICS.

EDUCATION.

In 1611, Thomas Sutton, a gentleman of England, died, and left an estate to charitable purposes, including the foundation of the famous Charterhouse. There was some dispute as to the will, and Francis Bacon took occasion to address the king a letter of advice respecting the proposed disposition of the property, as in case the will was set aside the king would be heir. In that letter occurs a passage which has a singular force here and now, where conditions exist not unlike those indicated by Bacon. "Concerning the advancement of learning," he writes, "I do subscribe to the opinion of one of the wisest and greatest men of your kingdom:— That for grammar schools there are already too many, and therefore no providence to add where there is excess. For the great number of schools which are in your Highness' realm doth cause a want, and doth cause likewise an overflow, both of them inconvenient, and one of them dangerous. For by means thereof they find want, in the country and towns, both of servants for husbandry and apprentices for trade; and, on the other side, there being more scholars bred than the state can prefer and employ, and the active part of that life not bearing a proportion to the preparative, it must needs fall out that many persons will be bred unfit for other vocations, and unprofitable for that in which they are brought up; which fills the realm full of indigent, idle, and wanton people, which are but *materia rerum novarum*."

We are discovering something of the same want and overflow now, especially in our cities. We need not even change Bacon's terms, though the words themselves have a little different meaning. Now, as then, there are too many grammar schools, or what is

more to the purpose, the grammar schools teach too much grammar. Bacon complains that in his day the schools caused a want of farmers and mechanics, and an overflow of clerkly people. Precisely this complaint must be made at present. The tendency of our highly organized public-school system is to discourage manual labour, and to multiply enormously the number of those who seek to maintain themselves by the pen or by trade. The course of instruction is almost exclusively intellectual in its scope, the time occupied covers years when the training for mechanical pursuits naturally begins, and the apparent prospect of a higher social pursuit leads to an aversion from the humbler occupation. The result is that the mechanical arts suffer an indignity, and boys who might have been fitted for good workmen become indifferent book-keepers, clerks, and salesmen.

Now a state rests for prosperity not upon its clerks, but upon its workmen; it is the men who handle tools that contribute to its wealth and may be trusted for its defence, and it is of the first importance that this class should be trained not only in the arts, but in intelligence and character. But the divorce of manual and mental education in our public schools tends to perpetuate the separation out of school. If there is intelligence in the workman and a capacity to improve his art, these are not the distinguished results of the training which the public schools give; that training steadily withdraws the young from mechanical and agricultural pursuits, and crowds them into occupations, already overstocked, which depend for their prosperity indeed upon the development of the arts.

Moreover, the public-school system not being found favourable to the mechanic arts, what great educational force remains? The apprentice system has nearly disappeared.

It has declined contemporaneously with the rise and encouragement of a compulsory public-school system, and the two facts are related more closely than by the accident of time. It is true that we must look for the chief cause of this decline to the introduction of steam power, which has led to the formation of associated industries, and the breaking up of labour into fragments. The rapid changes in society also have made the old relation of master and apprentice unlikely; but neither the introduction of machinery nor the multiplication of grades between the contractor and the workman has lessened the necessity for skilled labour, or rendered the trained workman a superfluous member of a great state.

The economic considerations which would persuade us to introduce into the public-school system a recognition of manual training are re-enforced by the discovery of a yet higher argument in the very nature of education itself. It is not to be wondered at that our school system should have grown into a purely intellectual order. In its beginning there was no assumption of an entire control of the child. So much time was given to school as could be spared from the farm and shop. There still existed a well-recognized tradition of mechanical knowledge, and the school was looked upon as supplying those rudiments which could best be acquired there. Gradually, as cities grew, increasing thus the class of children who had no other employment, school came to be the chief occupation of the young. The attention of the community becoming more concentrated on this important institution of the State, the existing apparatus for instruction was improved and refined: the school-book industry was developed, and normal schools established for the better education of teachers who were to stand behind these school-books. The pride of the State, the enthusiasm of teachers, the natural quickness of children at leisure, these have all helped to swell the tide of the public-school system, and to carry it on in the direction of its first setting.

Now that all this has been done and the elementary truths of society begin to assert

themselves, we shall discover that in neglecting the education of the hand we have not only weakened the power of the State, but have stimulated an unbalanced education of the person. A training which ignores the hand is not the training which either nature or history will approve. That member is something more than a symbol of industry. "Whatsoever thy hand findeth to do, do it with thy might," "Establish Thou the work of our hands," are not phrases ingeniously contrived to translate into the vernacular the intellectual exercises of clerks and commercial travellers; they point to an elemental condition of human well-being. Nor is this training of the hand to be obtained by means of gymnastic swinging of dumb-bells. The training of the hand means the power to use a tool; the training of the eye is the power to see perfect work; the training of the mind is the power to conceive and execute that work.

The curing of the defect in society and the restoration of education to a sound and healthful condition are to be sought in a reformation of that system which we justly regard as the very engine of the State's prosperity. Nor are signs lacking that the public mind is turning in that direction. The introduction of drawing into the curriculum is one sign, and it is curious to observe how the double argument, drawn from economy and from the philosophy of education, has been used in support of this measure. The introduction of sewing for girls is even more significant. Here the argument has been drawn chiefly from the economic side, and the facts which gave the argument its force were unassailable.

This study of sewing forces upon one the question of the manual education of boys. The question is precisely the same, only its solution is more complicated. To the girl is given one tool, and the perfect mastery of that carries with it a training in thoroughness, order, concentration, precision, and self-respect; the practice, moreover, is easily associated with a daily need, and the charm of useful production is attendant on the study. But there is no one tool which can

be affirmed of the boy, and this is sometimes taken as an excuse for not teaching him the use of any. Yet the variety of tools which a boy may use only suggests practical difficulties; it does not declare these difficulties insurmountable, nor in any way weaken the force of the educational argument. The difficulties indeed are such as yield readily to an intelligent will. Half of the question is answered when one considers that the primary object of manual education in the public schools is not to make boys carpenters, ship-builders, masons, or followers of any other craft, but to instruct them in the meaning of their hands and of the tools which those hands may grasp. Hence the shops which may be attached to public schools will be shops of instruction, not of construction, and the training will be in the grammar of the arts, not in the indefinite number of forms which the arts assume.

The various schools of technology which exist do not meet the general need which we have described. No; the remedy lies in such a readjustment of the public-school system in our cities as shall make it include formal, progressive instruction in the manual arts. If it be said that the State or the city has no

function to educate children for specific trades, but only to give them a common-school education, as that term is now understood, it can be answered, first, that the present system does almost inevitably educate children for the desk and the counter, with a reversion in many cases of the almshouse or the police-station; and, second, that there is nothing in the present reach of common-school education which need compel us to glorify it as the final and perfect force for developing the human character. In truth, we might better ask humbly why the present system has failed than boast of its success. Nor should we be far wrong if we were to assert that in making common such an education as we have outlined we are likely to produce citizens who in peace would be more valuable, working in shops, and not waiting behind counters, and whose training would make them better soldiers in war. The drill of school-boys with the saw, the plane, the axe, and the file would make them stronger defenders of the State than if they had known only the manual exercise of the school-room, or even had been formed into battalions of miniature soldiers.—*Atlantic Monthly*.

TO POOR BOYS.—Never sit down despairingly and say, "It is impossible for me to rise in the world. I am only a poor boy. There is no chance for me." Why, it is just such as you who have risen highest and become men whose names are known throughout the world, who thoroughly understood at the outset that their fortunes were in their own hands, and that hope and energy and effort were better than all the family influence in the world. Inherited wealth seems to be actually enervating. Talents too often lie disused in the hands of rich men's sons. What need of striving? they think; competence is theirs; and often such men squander the fortunes they have not earned, and lives that began in luxury end in beggary. "No living soul will ever give me a penny" is about as wholesome a prophecy as a boy can read in the book of fate. Despair because you are poor? Why, that is the very reason that should bid you hope! The biographies of most great men, of most successful men, will tell you that, if you will but read them.

HISTORY WITH A VENGEANCE.—Some of the answers to questions about English history recently given by some pupil-teachers to a Government inspector of schools are rather startling. One, a girl of eighteen, stated that the conversion of England was effected by Julius Cæsar coming over with forty monks; another, a pupil-teacher in his fifth year, employed at a large Board-school, stated that, after signing Magna Charta, Charles I. was defeated by Oliver Cromwell at the battle of Runnymede.

SCENE—Road to Scotch railway station; commercial traveller is proceeding to it in company with a boy he has engaged to carry his samples. C. T.: "How long have you been at school?" Boy: "Three 'ears!" C. T.: "What book is that you've got in your pocket?" Boy: "The wan-an-sex-penny." C. T.: "And what sort of book is that?" Boy, emphatically: "The aichteenpence." C. T.: "Is it lessons in English, or is it history?" Boy, wondering at C. T.'s ignorance: "No, it's the Royal Reader."

PUBLIC SCHOOL DEPARTMENT.

[Contributed to, and under the management of, Mr. S. McAllister, Headmaster of Ryerson School, Toronto.]

THE PUBLIC EXAMINATION DAY.

December is, perhaps, the busiest month in the year in our public schools. The teacher, whose duty it is to take stock of the progress made during the past few months, is busy reviewing the work of the junior classes orally, and examining the senior classes by written papers. Added to this, he has to devote serious attention to the preparations for his closing exercises; so that when that most trying day in the year to every teacher, old and young, the public examination, or more properly exhibition day, comes, he will have every arrangement made to make all go "merry as a marriage bell." The scholars, too, who are at all ambitious, must not be idle, because upon the results of their work this month in many schools depends their promotion to a higher class. Besides, have they not maps and specimens of various kinds of work to prepare for the edification of their visitors, and songs, readings and recitations for their entertainment? And happiest, though most laborious task of all, have they not the school to decorate, and make, in their own estimation at least, like a garden of Eden for one day in the year? Happy is the teacher who, in sympathy with his scholars, can make these joyous occupations of theirs a recreation to himself, and a reminiscence of his own childhood's days. Even if he cannot do this, let him tolerate them with the consolatory thought that his scholars are going the most successful way about making the day a red letter one in their life's calendar. However happy the anticipation of this day may be to the scholars, it is too often looked forward to with feelings of painful anxiety by the teacher. There are many whose success in keeping their classes in the

best of order, on that day, under circumstances the most unfavourable, will decide whether they be reappointed or promoted. Trustees and others, who only visit the school on examination day, are too prone to estimate a teacher by what they then see, however superficial the display may be. Hence, in teaching, as in other occupations of life, "the race is not always to the swift, nor the battle to the strong." It too often happens that the one who can make the best outward show wins the palm, while he who may be by all odds the most skilful in developing not only the intellect but the character may be cast adrift, or left behind, because he has not either the faculty or the inclination to do work for mere show. In the desire to create a favourable impression upon visitors, injudicious teachers are strongly tempted to prepare pet questions for their scholars to answer. Indeed, we have known a teacher of some standing who remarked to a scholar after a day of this kind, that if she had not been present to have answered the question in history she gave her, and in which she had been drilled a day or two previously, she could not have had it answered at all. We would urge our readers to abstain from such a demoralizing practice as this with all the power they possess. By giving way to it you corrupt the weak among your scholars, and incur the contempt of those whose nature is above such petty tricks, and you lose your own self respect. Keep in mind that every act of yours before your scholars should have the same effect on them that each blow of the sculptor's mallet has on the marble. Do everything in your power to make the examination day a happy one to your scholars, but let it be a profitable one too, both to them and to you. Remember while scholars retain recollections of their ordinary school

days, examination day, from the exceptional circumstances attending it, dwells particularly in their memory; and it depends upon yourself whether, in after years, you will be remembered by them with feelings of scorn or of respect. By careful forethought, and judicious management, a teacher can easily tide over the trials incident to the day. Let him not only have a programme prepared for his visitors' information, but a plan of work for his own guidance, the notes of which might be put prominently on the black-board, that all the scholars might see them, and know the work laid out for them; they would then fall easily into what had to be done, and confusion at the change of work would be reduced to a minimum. Let everything be done with as much earnestness and oneness of purpose as in your everyday work, and for the children's sake, if not for your own, avoid all appearance of sham or deception. If you want to make them have pleasant remembrances of you, even during the holidays that ensue, you must not do anything to mar the favourable estimate they may have formed of you in their every-day intercourse.

THE SUPERANNUATION FUND.

At the last meeting of the Provincial Association, the public-school section passed the following resolution:—

"Moved by Theophilus Hall, seconded by G. Treadgold—That in justice to the teachers of the Province, the clause relating to the Superannuation Fund, which provides that teachers shall teach until sixty years of age, unless disabled, should be amended by introducing a clause giving them permission to retire after twenty-five years of active service without forfeiture of their claims on the Superannuation Fund, and that Messrs. McAllister, Campbell, and Spence be a Committee appointed to lay this resolution before the Minister of Education."

These gentlemen, in fulfilment of their allotted duty, waited upon the Minister by appointment on Saturday, 13th of December. He courteously received them, and entered into a full discussion of the whole subject

with them. In the course of this they urged that the legislation which established the Fund in its present shape, was not asked for by them, and that they had no voice in framing any of the clauses. That the change they were present to urge would not have the effect of deteriorating the character of the profession, but would, on the contrary, result in keeping the best men in it, seeing they would have the prospect within a reasonable time of retiring upon an allowance proportionate to their length of service. The Minister urged that the country might thus lose the services of men in the prime of life; this was admitted, but it was pointed out that even then the best part of their lives would have been devoted to teaching. It was further pointed out that, at best, the allowance from the fund was a mere pittance, not at all sufficient to support a person who retired at sixty years of age, that even after many years' service, at that age he would be quite unfitted to take up any other occupation, to eke out a livelihood. The Minister admitted this, but urged that it would be a material help to keeping the wolf from the door. It was suggested that, if teachers were permitted the choice of retiring at an earlier period, they would be enabled to supplement their payments from the fund by some other occupation, and that as the proposal was to leave the matter optional with the teacher, the probability is that there would be little more demand upon the fund than there is at present, particularly as the payment from it is proportionate to the number of years of service.

The Minister's attention was directed to the Scheme of Superannuation for the Irish teachers, a short account of which appeared in our September number. It was pointed out to him that a teacher in Ireland, by the terms of the Act passed in the last session of the Imperial Parliament, must retire at the age of 65 years, that if he is of the first class, in return for an annual payment of £4 1s. 8d. he gets a pension of £88. That he is allowed the option of retiring at the age of 55 years, or upwards, upon a pension proportionately smaller than that allowed at 65.

His attention was also directed to a large class of teachers who came into the profession twenty-five or thirty years ago, after complying with the legal requirements as to qualification then in force, but who are now left behind in the race by the better qualified teachers at present in demand. These, it was urged, should on account of long and faithful service have the benefits of a fund whose very existence is only justified by rewarding lengthened service in the education of the people. The Minister expressed his regret that these views and wishes of the teachers had not been brought under his notice in 1877, when so many changes were made in the school law; then he would have been quite prepared to consider them with a view to legislation. The accusation had been so often made against him of "tinkering" the school law, that if any attempt were made merely in the direction the teachers, as represented by the committee, now indicated, it would be pointed to as a justification of the charge. He said the country at present makes a very liberal allowance out of the public money to supplement the contributions of the teachers. Two years ago it was two and one-half times, and last year three times, what the teachers annually contribute to the fund.

That the whole system is a very artificial one, and presents a number of incongruities; that it is worth while considering whether it could not be remodelled so that by means of greater self-denial on the teacher's part, in making a larger annual contribution, a greater amount of pension might be secured,—such an amount, in fact, as would enable the retired teacher to live in comfort. He indicated that he would only be prepared to take action in case it were thought wise and expedient to deal with this larger question. To do this effectively would require a great deal of thought, and the manipulation of a great many facts. He could not, therefore, hold out any prospect of dealing with the matter during the coming session, but stated that in the course of next summer he would give the matter his earnest consideration, and would then be able to indicate what direction legislation should take to

make the fund as effective as it should be made, in carrying out the purposes for which it was established. The members of the committee expressed their concurrence with him in the desirability of increasing the yearly contribution of each teacher, provided a proportionate increase in the allowance from the fund could be secured. After thanking the Minister for his courtesy in giving to them so much of his time and attention, they withdrew.

From this account of what took place our readers will observe that while Mr. Crooks shewed a warm sympathy with the public school teachers of the Province, he was very non-committal in regard to any legislative action he might take with reference to the Superannuation Fund in the future. The chief benefit of the interview was in securing the expression of his desire to see the fund on a more satisfactory basis than it is at present. We can assure him that any efforts he may make to render it more of a sustentation fund for worn-out, or retired teachers, than it is at present, will be warmly supported by the teachers of the Province, provided their claims to a voice in any legislation, tending to the improvement of the fund, be recognized and considered. They will be ready to exercise the self-denial the Minister speaks of, if they have a reasonable prospect of an annual allowance that may make some approach to self-support, and also of enjoying that before they are utterly worn out, and perhaps, have but a year or two longer to live. We have seen it sarcastically remarked in the public press that if Mr. Crooks' words were deeds, he would make an admirable Minister of Education. It remains for him to show the teachers of the Province that, in dealing with the Superannuation Fund, he can act judiciously, as well as speak wisely and sympathetically. He has an excellent opportunity in dealing with the fund in the direction he indicates, of leaving it as a lasting memorial of his tenure of office as Minister of Education. We can assure him that teachers are far from being the worst chroniclers of his deeds he might have, and they are not apt ungratefully to forget any efforts that are made on their behalf.

HIGH SCHOOL DEPARTMENT.

GOVERNMENT AID TO HIGH SCHOOLS.*

The fact that Boards of Education throughout the Province have seen the grants to High Schools steadily decreasing, has set many friends of education thinking what the end of the matter must be. No one seems able to account satisfactorily for the disappearance of the grant, but that it goes on dwindling down is very apparent. Many well-meaning people believe that a large portion of the money that should be spent upon higher education, pure and simple, is spent upon endless examinations, printing, stationery, postage, and other facile ways, apart from its legitimate application. There is also, and this is not surprising, a great outcry about the wisdom of such an endless round of examinations. And it is, to say the least, remarkable that there should be such a concensus of opinion that, on the whole, the results of these written tests are extremely unsatisfactory. It certainly does seem a very strange thing, that all our educational machinery should be kept in motion for, apparently, no other purpose than simply to rotate the examination fly-wheel. We greatly fear that under the present system, the cause of education is suffering in its aims. But of this, more anon.

The point on which we wish to dwell, at present, is that every year the burden thrown upon municipalities for the support of higher education has increased; that it is increasing, and that it ought to be diminished. Not that we mean to imply by this that the High Schools are inefficient, or that they

cost too much. But there is good reason for contending that the cost, to a much larger extent, should be sustained by the country at large. Some years ago boards of education were led to believe that if they put up good buildings and equipped them from local sources, the expenses of tuition would be borne chiefly by the Legislative and county grants. Acting upon this belief very many boards of education erected commodious structures, purchased costly apparatus, in a word, equipped their local colleges with all necessities for giving a high-class education. The expectation of Legislative aid, however, has not been realized. Then, too, the training of the teachers, formerly done in the Normal Schools, has been imposed upon the High Schools, and this work, Provincial in its character, has not brought any revenue to the High School treasury. This work, we have no hesitation in saying, is, on the whole, admirably done; better done in fact than it was in the Normal Schools, and should be paid for liberally by the Legislature. Moreover, the number of pupils in the High Schools has steadily increased, while the grant, as a whole, has remained unchanged, and in many cases steadily diminished.

Furthermore, the standard of scholarship in the High Schools has been raised far beyond the old mark, requiring teaching of a correspondingly higher character. In fact, amid the force of competition that is raging throughout all parts of our school system, no High School can live and flourish without thoroughly qualified teachers. Skilled labour bestowed upon Provincial work should be well paid, but the Province, as a whole, should pay the bill in chief part. The locality in which the High School is situated should pay its share, but that should not be the larger share.

*[We give place with pleasure to this article from a contemporary, which has been sent to us by the writer, though we dissent from his opinion with regard to the claims of the Collegiate Institutes to Government aid over those of the High Schools. We shall deal with the point, however, in our next.—EDITOR C. E. M.]

Then, again, a purely fictitious distinction has been established between High Schools, that is, between the High School proper and the Collegiate Institute, whereby the latter draws \$750 per annum more than the High School from Legislative aid. The distinction between a Collegiate Institute and many High Schools is, that the former has sixty boys in Latin, while the latter may have only fifty-nine. It is well known that in these Collegiate Institutes boys are forced into Latin, simply for the purpose of laying a claim to the grant. No one, at this time of day, with the University class lists before him, would hazard the assertion that classics are more generally or more efficiently taught in the Collegiate Institutes than in the High Schools. In fact, the distinction between these two classes of High Schools is purely one of numbers, an adventitious circumstance depending almost entirely upon locality. These Institutes spring up where the population rises over four thousand. Is it not strange that a system should obtain that, just in proportion as localities are able to help themselves abundantly, they should be liberally aided by the Legislature, and that in proportion as localities are little able to keep themselves, they should be pinched by the same Legislature? There is not the shadow of justice in the present distribution of Legislative aid to High Schools, and the Government should be called upon to devise some remedy for correcting the abuses that are crushing the life out of our High Schools. Let there be a much larger grant to these public institutions. Let less money be spent upon examinations, printing and stationery; let the money go directly to the schools and not stick to so many fingers; let a girl be counted as good as a boy in schools, and let there be no distinction based upon the study of the classics, a subject all very well in itself, but calling for no especial fostering in view of modern requirements in schools, the wants of society, and the sharp struggle for existence that falls on the lot of so many people now-a-days.

We feel confident that the present Government only need to have this subject

brought prominently before it, and the abuses clearly pointed out, to devise a remedy. Mr. Crooks is too much in earnest with his work to suffer any parasitic growth to tap the life-blood of our system of education. He can have no object in perpetuating abuses. He need not interfere with vested rights. He need only, with regard to the extra grant to Collegiate Institutes, make no distinction in the subjects of the curriculum, and a crying evil will be swept away.—*Whitby Chronicle*.

MEDALS.—His Excellency the Governor-General has generously presented the different Collegiate Institutes in Ontario with bronze medals for competition by the scholars of these institutions. What do the authorities of these schools say to awarding the medal to the pupil who obtains the highest number of marks at the next Intermediate?

MORALS IN SCHOOLS.—It is our experience that a higher moral character is required of our school instructors, whether their sphere of work be the Public or the High School. Their *lives*, their daily discipline, which is chiefly moral, rather than punitive, if they are worthy of their office; the inculcation of virtuous habits, suggested by school exercises; the incidents of the hour, as enforced by some breach of propriety in the pupil, constantly impress and train the moral nature of the scholars. There is scarcely a school in the Dominion where a positive moral atmosphere does not give a wholesome shape and impress to the spiritual nature of the child.

THE City Council of Brisbane, Queensland, have enacted that no goat shall be allowed to be at large unless it has on a collar in the shape of an equilateral triangle. At this the *Queenslander* waxes irate, and vents its wrath after the following fashion:—"Education is all very well in its way. There is no doubt it teaches people a thing or two. It is credited, too, with improving the manners, cultivating the tastes, and affording new opportunities for enjoyment, and thus offering various avenues to happiness. We deny

none of these advantages, and wish distinctly to affirm before going any farther that we decidedly advocate education as likely to improve and elevate society and the masses. But let us maintain a just balance even in our insistence on principles that may tend most powerfully to the public good. In future the owner of a goat is enjoined under penalties to compass his property with 'an equilateral triangle.' No one could possibly object to being ordered to put a collar on his goat as a proof of registration, but many an owner will quail when he hears it must be in the form of an equilateral triangle. The municipal council might as fairly insist upon every goat being marched by his proprietors

across the *pons asinorum*, and made to poke his head through an isosceles triangle. In Queensland we are supposed to be so highly educated as to take this sort of thing with equanimity. The line of attainment in a country of compulsory education must be drawn somewhere, and we think it might fairly be drawn at Euclid. If we were in America, where city rings are not unknown, the corporation would lie under the imputation of having probably imported a cargo of equilateral triangles that they desired to get rid of quickly, but here we believe they are passing honest, so that it is after all only their three-cornered way of doing things."

CONTRIBUTORS' DEPARTMENT.

STRAY THOUGHTS ABOUT TEACHERS AND TEACHING.

By a Contributor.

I.

INDEPENDENCE.

I once heard a friend say that he had observed in the bearing of certain teachers of our public schools a certain lack of independence—a sort of cringing (I do not like the word) to those placed over them as trustees and inspectors. Imagine what this single remark involves. A lady or gentleman of, at least, some education and possessed of much of the refinement that education is certain to impart or to strengthen, is compelled to learn the arts of humouring, temporizing—I had almost said fawning. This is the position of many well-educated teachers amongst us. Ignorant members of school-boards and crotchety inspectors tyrannize in a manner that few are aware of, over the teachers, whom the votes of the electors often have imprudently placed in their power. A teacher must pass a strict examination in order to qualify himself or herself for the duties of

school-work. A board of trustees, who have full power over these teachers need not know anything. Education, as a means or an end, may be as a sealed book to a trustee yet the interests of education are placed in his hands; the teachers may be ladies and gentlemen born and bred, the trustees may be, and very often are, mere bores. A man who never put a capital letter in his life in the right place except by accident, who has no idea whatever of what is meant by refined feeling, who has plenty of money, but no appreciation of what education is intended to supply, comes forward as candidate for a place on the school-board and in a circular, ungrammatical, or written by someone else, sets forth his peculiar fitness for the duties of trustee. Of course you cannot expect much from school-boards constituted after this model, and if we meet with almost unaccountable blundering, when we expect judgment, we can only lay the blame on the facile method at present in use of forming school-boards. It is mentioned as one of the triumphs of sound principles, that under the British flag those who hold the balance of justice shall, during good behaviour, be independent even of the Crown. This was in-

deed a triumph of principle. Rarely indeed do we meet with evidence of dishonesty among judges, and the same system which was introduced in the interests of the administration of justice will alone secure the best results in other departments of the public service. What independence and manliness usually characterizes the British judge! Immoveable as a mountain, he withstands the tempest of argument that beats upon this side and upon that. Brave, with a sense of his security, and calm with a sense of his responsibility, he alone in all the court of justice is truly free, truly independent. The prisoner at the bar has in the judge, though he may not recognize it, his best friend. The counsel for the accused may pour forth torrents of impassioned eloquence moving jury and spectators to tears of sympathy with his client, but it is purchased eloquence. The counsel for the prosecution may shatter into ruins the edifice reared by his learned friend, and turn the sympathy excited into horror or disgust. Here again ambition or a fee has opened the springs of eloquence. The prisoner's truest friend is the judge, who has withstood alone in court both sympathy and prejudice. But if the judge be the prisoner's best friend he is also the country's best friend. To throw an ægis over innocence, and to shield his country

from the hand of villainy is the high duty of the righteous judge. His judgment may stray, or error may lurk undetected in the materials out of which his judgment must be formed, and if he give a wrong judgment, it is because he is a man. The very type of independence is the British judge. Why there are many that look upon the ordinary Briton as a type of independence, bold and sturdy, which teaches a man to defend his honour to the last, and to respect the honour of others. But though under the Union Jack the independent, honest, sturdy, upholder of rights all round, is common, yet unfortunately he is not universal. He is generally an educated man, though not always, for I have found many instances of right feeling of justice among those whose opportunities for "education" have been but few. But there is no trouble in pointing out examples of the utter failure of personal independence. Place a board of ignorant men, or what is the same thing, of prejudiced men, over educational interests and of course it will go hard with educational interests. We would not willingly put a wild Indian of the plains in command of a railway train, nor intrust him with a commission to paint a portrait, but that is what we do in educational matters—we hand them over to those who know nothing about them.

OUR great want in social life is a deep and wide sympathy. This it is which enables us to see with another's vision and to appreciate another's instincts. Without merging a particle of our own individuality, we may so fairly put ourselves in the place of our friend as to feel how natural it is for him to speak or to act as he does. Sympathy like this is the only true preventive of those clashes and discords which mar the happiness and sully the purity of friendship.

MIDDLE LIFE.—"It is a solemn thought and feeling connected with middle life," says the late eloquent F. W. Robertson, "that life's last business is begun in earnest; and it is then, midway between the cradle and the grave, that a man begins to marvel that he let the days of his youth go by so half enjoyed. It is the pensive autumn feeling, it is the sensation of half-sadness that we

experience when the longest day of the year is passed, and every day that follows is shorter; and the lighter and feebler shadows tell that nature is hastening with gigantic footsteps to her winter grave. So does man look back upon his youth. When the first gray hairs become visible, when the unwelcome truth fastens itself upon the mind that a man is no longer going up hill, but down, and the sun is always westering, he looks back on things behind, when we were children. But now there lies before us manhood, with its earnest work, and then old age, and then the grave, and then home. There is a second youth for man better and holier than his first, if he will look forward and not backward."

CONSIDERING one's own weakness is a great help to gentleness in dealing with others.

CONTEMPORARY LITERATURE.

MR. EDWARD ARBER'S ENGLISH REPRINTS.
London: Edward Arber. Toronto: Willing & Williamson.

Few individuals have done so much for the English scholar as Mr. Arber, Lecturer in English Literature etc., London, England. The residents of the colonies are, in particular, indebted to him; for, by his efforts, they are enabled to provide themselves, at a trifling cost, with reprints of works the originals of which are as valuable for their intrinsic merits as for their rarity, even in England. To be worth anything, English literature must be studied from the originals; no second-hand knowledge can replace the effect of immediate soul-contact; and, even had Mr. Arber not laid us under a debt of gratitude by his scholarly prefaces and general commentaries, he deserves more, probably, than most editors, the thanks of all students of "our wells of English undefiled." Mr. Arber has published at his own risk, and at a surprisingly low rate, the less known or less easily obtainable works of from forty to fifty authors, extending over a period of more than five centuries—from the reign of Richard I. to that of Queen Anne. Amongst these we may mention *The Monk of Evesham*, *The Paston Letters*, *Ascham's Toxophilus*, *Latimer's The Ploughers*, and *Seven Sermons*, *Ralph Roister Doister*, *Tottle's Miscellany*, *Ascham's Scholemaster*, *Gascoigne's Steele Glass*, *Gosson's School of Abuse*, *Lyly's Euphues*, *Sidney's Astrophel and Stella* and *Sonnets*, *Selden's Table Talk*, *Raleigh's Last Fight of the Revenge*, *Earle's Microcosmography*, etc., etc. A few of the publications are of interest possibly to the literary antiquarian only, but no man who professes to be an English scholar can afford to be without a set of the reprints, the whole fourteen volumes of which may be bought, post paid, for £2 6s. sterling. The *English Scholar's Library*, of which eight numbers have already been published—price 13s. 6d.

—is also an invaluable contribution to our editions of early English classics; and *An English Garner*, intended for general readers, contains matter of inestimable importance to the student of English literature. The writer of this notice, who has studied with delight most of Mr. Arber's publications, heartily recommends the series to the English masters of the Dominion who desire to have an intimate acquaintance with the many phases of our national development.

The most expensive and, to the general reader, the least interesting of the Reprints, is *A Transcript of the Company of Stationers of London, England*, which contains all entries relating to books, the careers of individual printers, binders, publishers, and other members of the company, and items affording data towards the history of wages, prices of food, etc., in London. The *Transcript Reprint* ends with the opening of the Long Parliament, as this date is a distinct and definite turning point in our printed literature, and the period selected comprehends the culmination of English action and thought. To quote from Mr. Arber's prospectus, "Of many books—still lost to us—these Registers are the *only* record. They are also, and ever will be, the foundation of English Bibliography; and besides, are the chief authority, for their period, in the history of English Printing. They are therefore especially valuable to book-collectors and the administrators of public libraries. They chiefly enregister FIRST EDITIONS, but there are also occasionally TRANSFERS from one publisher to another. Most of the Poems, Interludes, and Plays are recorded in them: together with the earliest Voyages to the East Indies, and the publications relating to the foundation of our American colonies. In fact, there is nothing like them anywhere extant in any foreign language; so early, so precise, so voluminous, so certain, and therefore so authoritative." While

the private collector would hardly be justified in purchasing a work of this character, there can be no doubt but that in the interests of present and future Canadian scholars, our public libraries should each possess a copy. Not the least drawback to the progress of literary development amongst us is the impossibility of procuring authentic data and of obtaining access to the more expensive class of works of reference. Neither our business nor our literary men are financially on a par with those of the British islands; and what to the Canadian scholar or the Canadian Literary Institute would prove an unwarrantable expense, might, with grace and usefulness, be borne by a Government that has hitherto not been conspicuous for its recognition of the requirements of literature. Nowadays, of book-making there is no end, and instead of spending their appropriations in the purchase of all the ephemeral literary and scientific works of the time, the custodians of our public libraries might, with advantage, provide for the necessities of the future of Canadian research.

To Canadian teachers, however, we strongly recommend those of his volumes which Mr. Arber especially calls *English Reprints*. In the quaintness and freshness of the editor's style and remarks, there is a depth of pleasure which we should gladly know that everyone had tasted.

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1. SHAKSPEARE, SELECT PLAYS, CORIOLANUS, edited by William Aldis Wright, M.A., LL.D. Oxford: at the Clarendon Press, 1879.
 2. SHAKSPEARE'S COMEDY OF THE WINTER'S TALE, edited, with notes, by William J. Rolfe, A.M. New York: Harper and Brothers; Toronto: James Campbell and Son.

There is no difficulty at the present time in procuring cheap annotated editions of the great works of the great authors. The impulse given to the study of these works, of late years, has been largely due to the very copious supply of school editions, possessing all degrees of merit, from the barely passable to the excellent. Difficult indeed is often the task of choosing. If the reputation of an author is unknown, it is easy to make a

wrong selection, and especially when we have to take into consideration the pretentious character of advertisement or of preface.

We have before us two of Shakspeare's plays, "*Coriolanus*," edited by Rev. W. Aldis Wright, and "*The Winter's Tale*," by Mr. William J. Rolfe. Of the "*Coriolanus*," published by the Clarendon Press, it may seem superfluous to speak, the author's reputation in the field of English scholarship being fully established. In it, as in his editions of "*Julius Cæsar*," and other plays, Mr. Wright manifests his usual care and patience in the elucidation of the difficulties of his author. The introduction is calm and to the point, and singularly free from the theorizing so common among students of Shakspeare. To explain what is before him, to give solid information of the language, allusions, and times of the dramatist, is the editor's chief aim, and he dismisses with contempt the question as to whether Shakspeare had a political object in view in writing the play or not. Another feature of Mr. Wright's method of annotation is his avoidance of the so-called "æsthetic" treatment of the subject. It seems to us that in a school-book, at any rate, the editor has acted wisely in this. What a mass of theory and of, perhaps, unprofitable talk is hereby avoided! The school-room is certainly no place for such discussions, and whatever little of the kind be introduced into it, should come from the teacher himself. For ordinary school-work, then, these editions by Mr. Wright are the best with which we are at present acquainted.

"*The Winter's Tale*," under the scholarly editing of Mr. Rolfe, presents, like all the plays he has annotated, the same industry in collecting and arranging information. What renders this edition of special use to teachers is, that the editor aims at producing a kind of *variorum* edition, and that the introduction contains extracts from the great critics of Shakspeare, native and foreign, such as Gervinus, Ulrici, Dowden, and Mrs. Jameson. We must not omit to say a word in praise of the manner in which the books of the series are printed, bound and illustrated. In these respects they are admirable.

TABLE TALK.

MANY men think that an offence can always be nullified by a defence.

WISDOM and truth are immortal ; but cunning and deception, the meteors of the earth, after glittering for a moment, must pass away.

It is difficult, La Bruyère says, to decide whether irresolution makes a man more unfortunate or contemptible, whether there is more harm in making a wrong decision or in making none at all.

No life is wasted unless it ends in sloth, dishonesty, or cowardice. No success is worthy of the name unless it is won by honest industry and brave breasting of the waves of fortune.

WITH the healthy reasonable mind a promise involves its performance ; but irresolution never considers anything as settled so long as change is possible. Every hindrance, every difficulty is an argument for a reversal, or breach of contract, either with oneself or others.

INSTRUCTOR IN LATIN—"Mr. B., of what was Ceres the goddess?" Mr. B.—"She was the goddess of marriage." Instructor—"Oh, no ; of agriculture." Mr. B. (looking perplexed)—"Why, I'm sure my book says she was the goddess of husbandry."

THE greatest man is he who troubles himself the least about the verdict that may be passed upon him by his posterity, but who finds doing good honest work to the best of his ability, under existing conditions, "its own exceeding great reward."

THE tenacity of impressions received in childhood is a factor that should be held most important in every scheme of early education. Some of the sweetest associations with nature date back from that period, and we may often trace their quaint ring in the matured poetry of the man or woman.

SCHOLASTIC.—"William, you have again come up unprepared !" "Yes, sir." "But from what cause?" "Laziness, sir." "Johnson, give William a good mark for uprightness." "Bates, you proceed." "I have not prepared too, sir." "But why not?" "From laziness, sir." "Johnson, give Bates a bad mark for plagiarism !"

It is well to look both backward and forward. They who look only backward become too conservative. They who look only into the future become too rash, and are incapable of true progress. For progress always implies a past, and is content to be an advance upon it. True development preserves the old and carries it forward in an expanded and improved form into the new.

BAYARD TAYLOR was at a dinner with several gentlemen, one of whom bored the company with long philological dissertations. At length Mr. Taylor said, "Do you recal, the derivation of the word 'restaurant'?" "Oh, yes ! It is from the Latin *restaurare*, to invigorate." "Not at all," replied Mr. Taylor ; "it is from *res*, a thing, and *taurus*, a bull—a bully thing," The philologist subsided.

PURPOSES, however wise, without plans, cannot be relied on for good results. Random or spasmodic efforts, like aimless shots, are usually no better than wasted time and strength. The purposes of shrewd men in the business of life are always followed with carefully-formed plans. Whether the object is learning, honour, or wealth, the ways and means are all laid out according to the best methods. The mariner has his chart, the architect his plans, and the sculptor his model—and all as a means and condition of success.

No human being can be isolated and self-sustained. The strongest and bravest and most helpful have yet, acknowledged or unacknowledged to themselves, moments of

hungry soul-yearnings for companionship and sympathy. For the want of this, what wrecks of humanity lie strewn about us—youth wasted for the mocking semblance of friendship, adrift at the mercy of chance, without the grasp of a true firm hand, without a kindly loving heart to counsel!

NATURAL AFFECTION.—Natural affection offers a fine foundation on which to erect the edifice of a firm and enduring friendship, but it will not rise up of itself. We must build it, stone by stone, if we would possess it. If we have a valued and respected friend, what pains we take to cherish his friendship; how carefully we endeavour to prune away from ourselves that which would displease him, and cultivate those qualities which he admires; how we strive to gratify him by pleasant surprises and to avoid all that could wound or trouble him! Yet let the familiar house-door shut us in, and how many of us take the same pains?

NECESSITY.—Necessity is the great master, and it operates on all classes of society—it gives the power of concentration to the lawyer, teaches the physician to be self-contained and studious, gives efficiency to the pen of the writer, drills the book-keeper and the clerk, and trains the hand of the artisan. It is an ever-present and most exacting schoolmaster; and, as, with an immense majority, this schoolmaster begins his lessons in youth by means of the struggles and burdens of life, and continues them without relaxation to the end, the discipline within certain limits is complete—the self-control being general, but

the proficiency lying in each case solely along the line of experience.

"GOOD" CHILDREN.—Much of the crossness, irritability, and general unamiableness which characterise certain children and make their presence so annoying springs from neglect of their happiness in some direction. Either from indiscreet indulgence, undue severity, or careless negligence, their physical system is out of order, or their tempers are soured, and, feeling uncomfortable, they naturally vent their discomfort upon others. In describing a young child the words "good" and "happy" are almost synonymous, and no effort to make him the former can be successful as long as the latter is neglected.

PONDER THIS.—All things are engaged in writing their history. The planet, the pebble, goes attended by its shadow. The rolling rock leaves its scratches on the mountain; the river its channel in the soil; the animal its bones in the stratum; the fern and leaf their modest epitaph in the coal. The falling drop makes its sculpture in the sand or the stone. Not a foot steps into the snow, or along the ground, but prints, in characters more or less lasting, a map of its march. Every act of the man inscribes itself in the memories of his fellows, and in his own manners and face. The air is full of sounds, the sky of tokens, the ground is all memoranda and signatures, and every object covered over with hints which speak to the intelligent.

EDITORIAL NOTES.

THE MONTHLY'S PROGRESS.

The first halting place on the line of our journey has been reached; and after taking in fuel and water—the supplies for our onward progress—we shall presently make a new and fresh start. There have been obstacles in our path, but these have not been insurmountable. Though others loom up before us, we doubt not that when they are reached they will yield to our advance. In the assured position now won for *THE MONTHLY* we should be false to the motives that from the start have impelled us, did we falter now by the way. On financial grounds, at any rate, we have no reason to do so, for the substantial aid of an influential stock-company now happily lies behind our efforts. Other circumstances are equally favourable to our continued labours. Besides this, there is a moral element in every good work the influence of which is as stimulating as it is sustaining. If we will not be accused of arrogance, we may justly claim to be inspired, in the pursuit of our aims, by this potent and energizing force. The end of our endeavours, it will at all events be conceded, is the common good.

For our next year's work we have much in view and not a little already cut out. Those who have hitherto been our contributors promise to continue to write for us. Other and influential names will shortly be introduced to our readers. The January number will contain a thoughtful address on educational topics by Prof. Goldwin Smith, delivered when last in England to the Titus Salt Schools. In the same issue will appear a lively article on the University Question and the administration of the Senate of Toronto University of the affairs of the College. Its author, Mr. J. Howard Hunter, M.A., our readers will be glad to hail on *THE MONTHLY*'s staff of writers. Other

important articles will appear in this and following issues, and valuable assistance is promised from quarters hitherto new to us. Those in charge of the special departments of the magazine assure us also of increased attractions and of continued good work.

As the interests of our readers and our own are one, each subscriber should manifest a personal concern for the success of our work. Especially should this be the case in conducting a professional publication. We may therefore naturally look for an extended support, and for further and active efforts in our behalf. We have had many good words said of us in the past year. It is the good deeds, however, that speak best. The model subscriber will add yet another name to our list, and the model "clubber," pursuing his prey, will make early report to us.

"THE BYSTANDER."*

The appearance of the first number of *The Bystander*, a monthly review of current events, Canadian and general," from the pen of one of the most distinguished writers of the time, will be eagerly hailed by the reading community of the Dominion. Its publication makes a substantial and most important addition to the intellectual resources of the country. Rarely, if ever, have passing events in any country been discussed with greater ability than the topics of the day are treated of in the serial before us. One cannot read a page of the magazine before coming to the conclusion that the *critique* is the product of a master-mind, the style of the written-thought of which is as remarkable as the matter. In the latter, indeed, the anonymity of the writer is but ill-concealed. There is no disguise, however, in the expression of the writer's convictions. These are out-

* Toronto: Hunter, Rose & Co.

spoken in an emphatic degree, and wrong and the shaping of wrong will feel the lash. From much that the writer says many, it may be, will dissent. But this will triflingly limit the *Bystander's* audience. Of the latter, the teachers of the country should form no small portion, as the mental stimulus of even a single number's perusal must be invaluable to the reader. To teachers of English particularly, the subscription will be amply repaid in the opportunity the publication affords to study the literary style of a master of the art of composition. This in itself will be no little gain.

PRINCE LEOPOLD AT SHEFFIELD.

IT is not a little gratifying in these times to note that the surroundings of an English Court are not unfavourable to cultured thought and to the exercise in the mind of a Prince of active sympathy with learning and with high educational effort. The following speech of Prince Leopold, at Firth College, Sheffield, is a marked example of this, and His Royal Highness' utterance cannot fail to exert a beneficent influence upon education, and foster, in an increasing degree, the love of culture and the pursuit of an intellectual life. The Prince said :—

"Your new college offers her teaching and her certificates to young men and young women alike. The University of London does the same thing, and Oxford and Cambridge have taken important steps in the same direction, and I am told that the new University will not be behind hand in recognizing the claims of women's minds to respect and to cultivation. It is greatly to be hoped that the young men and young women of Sheffield will not neglect all these opportunities, and that they will learn to estimate the examinations they will be invited to pass at their true value—that is, as a means of guiding and stimulating their studies, and shewing to others how far they are competent to fill this or that position in life. One of the greatest gains which I anticipate for Sheffield from the Firth College is that her affiliation to the Universities of Oxford and Cambridge will cause many students to enter well prepared, and on easier terms of residence, in one or other of these Universities. For such residence I cannot but think may be made in itself an education such as no new institution can imitate or equal, and

when I say this I am not talking only of the unrivalled aids to the study of a material kind which Oxford and Cambridge offer in the way of museums, laboratories, and libraries, but rather of their time-honoured traditions and of the memories which they call up of the best and ablest spirits of by-gone days. I remember, too, that in those ancient seats of learning are still to be found men who are examples of unworldliness and meditation in the midst of a hurrying age, and who teach us that it is still possible to love truth and wisdom more than fame and fortune. Of two representatives of our old Universities you have yourselves known much of late. Mr. Ruskin, a world-famous man, has given to your town a museum of beautiful things, and has written to your townsmen words of counsel, encouragement, and warning, which they will do well to ponder." His Royal Highness then proceeded to point out how noble it was to help in such a work. "Those men," said the Prince, "who, with great wealth at their disposal, elect to spend it in mere sumptuousness and luxury, are repaid indeed by admiration from persons of a certain kind; but how far riches is the reward of those who, after spending what is needed to maintain with dignity their place in society, devote the remainder towards furthering the happiness of their fellow-men. Far-off generations shall rise up and call such men blessed, and the names they leave behind them shall be ranked with such names as those of Peabody in London, of Owens or Mason at Manchester, of Firth at Sheffield."

PROF. WICKERSHAM, State Superintendent of Pennsylvania, speaks no doubt from painful experience, when he says :—"No one should be graduated in a Normal School who is not an *expert* in school-room work. Whatever the character or scholarship, a want of skill in imparting instruction, or in handling a class, should be fatal to graduation." It will be a day worthy of commemoration in our school annals when our education authorities act upon this important truth in its full bearing. Hitherto it has been the rule, in appraising the merits of the candidate for the teacher's office to put scholarship first, and power of management last. The result is that it is no unusual thing to find men and women with all the guarantees a high certificate can give them of scholarship, utterly incapable of keeping a class in the proper condition for teaching purposes.

They lack not only the power of putting pupils in the attitude of attention, but also the faculty of keeping it engaged when once work is started. Hence, it is no uncommon thing to find teachers with even third-class certificates thoroughly at home in school-room work, and far ahead of others whose high certificates fail to guarantee them against the results of their incompetence. Teachers themselves are not so much to blame for this, since they have repeatedly urged upon the Education Department the necessity of making successful experience in teaching a more important element in awarding the higher grades of certificates.

At last the Woman Question is settled, and the sphere of woman's work for the future is a School Board trusteeship. At the recent elections to the School Board of London a signal victory has been won by the lady candidates most of whom were returned by enormous majorities. In Westminster division Miss Edith Simcox polled a large vote. In Chelsea Mrs. Webster headed the poll by 12,588. Lambeth equally displayed its gallantry in electing Miss Müller by a clear majority over the next competitor. In Hackney Mrs. Fenwick Miller had over 11,000 votes recorded in her favour. In Marylebone Mrs. Westlake takes priority over all her competitors with a total of 14,456. In Finsbury Mrs. Surr was returned, and in Southwark Miss Helen Taylor distanced all rivals by nearly 10,000 votes. The next year's administration will assuredly be eagerly watched, though we have ourselves no doubt of the result.

THE County Board of Wellington holds decided opinions in regard to some of the subjects it has to deal with as an examining body. At its last meeting it passed the following resolutions, the second and third of which might in other sections of the country be enforced with advantage to the profession:—1. "That in view of the fact that there are so many unemployed teachers in the county of Wellington, no third-class certificate granted in any other county be endorsed as valid

in either division of this county." 2. "That at the next third-class non-professional examination, six marks shall be deducted for each mis-spelt word in dictation, two for each mistake in spelling or the use of capitals in other subjects; and two marks shall be deducted for each badly punctuated sentence." 3. "That at the third-class examination to be held in July, 1880, the minimum for passing shall be forty per cent. of the marks assigned the paper on Arithmetic, fifty per cent. of the marks on Grammar, and sixty per cent. of the aggregate value of all the papers."

EDUCATIONAL INTELLIGENCE.

CHRISTMAS entertainments have recently been in order in most of the Young Ladies' Colleges in the Province, with pleasing results.

WE would call the attention of the profession to the advertisement in our columns of Mr. O'Sullivan's excellent "Manual of Government in Canada," which has just been published. We shall notice it in our next.

THE nominations of the Toronto Public and Separate School Trustees have just been held, with the result that many of the old members have been re-elected. Of the Public School Trustees we are glad to see Mr. Walter S. Lee and Dr. Ogden returned to office.

AT Port Perry, on the evening of the 18th instant, Mr. D. McBride, B.A., Principal of the High School, was presented by his pupils with a handsome silver tea service, accompanied by an address, expressive of their regard for him and their appreciation of his high qualifications as a teacher. Advantage was taken of the occasion to gather together a number of friends of the school from among the citizens and residents of the neighbourhood, many of whom supplemented the presentation by addressing congratulating words to Mr. McBride and the members of the School Board.

By the courtesy of Mr. Inspector J. R. Miller, of South Huron, we are in receipt of some excellent examination papers in the English branches set for the students of the Model School, Goderich. Their character reflects credit on the administration of the institution. In a subsequent issue we may give place to a selection from them.

THE Toronto Collegiate Institute Honour List is published, giving the names of scholars who got honourable mention at the recent half-yearly examinations. The length of the list, and the scope of subjects examined on, indicate healthy and active management, a result confidently looked for under the administration of its present Rector, Mr. McMurchy.

THE teachers of East Grey, at a recent meeting at Thornbury, manifested a hearty interest in the CANADA EDUCATIONAL MONTHLY by proposing some action in the interest of its increased circulation. While gratefully recognizing their good offices, we would urge the profession in other sections to follow the example of the brethren in East Grey.

THE West Huron Teachers' Association will hold their semi-annual meeting at Exeter, on the 16th and 17th of January next. We are prevented from making announcement of other approaching meetings in consequence of secretaries failing to keep us advised of their plans. In many instances of late they have been also negligent in forwarding reports of meetings after they have taken place. May we be allowed to call their attention to this.

THE Brantford *Expositor*, in a recent issue, gives an interesting account of a concert given on Christmas Eve, by the pupils of the Provincial Institute for the Blind, at which the Principal, Mr. J. Howard Hunter, M.A., presided. The concert consisted of songs and choruses by the pupils, and of piano, violin, and organ solos, all of which were artistically and pleasingly rendered. We are glad to see that the intelligent and

sympathetic interest of the excellent principal in his work suffers no abatement.

WHAT is Brockville's loss would seem, from the following paragraph, to be Toronto's gain :—

REMOVING TO TORONTO.—Two excellent teachers of our Public Schools, the Misses McKee, have accepted positions in the Toronto Public Schools, and will leave in a few days for that city. These ladies have most admirable records as teachers; and their department in every respect has always been unexceptionable. We have known them almost from their childhood, and are well aware of their personal worth. They will be a real loss to the community here in many ways. We wish them all manner of prosperity in their new home, and God-speed.—*Brockville Monitor*.

The Brantford *Telegram* remarks that :—"The fine library at the Grand Trunk railway station in this city is largely patronized by the men in the employ of the company here. This could be easily told by a chat with them, for upon general topics they are more than ordinarily well informed, and find no trouble in giving intelligent opinions when questioned." This fact speaks well for the character of the railway workmen of Brantford, as it also speaks well for the thoughtful consideration of those who furnish the means to equip and maintain the library. It might be asked what are teachers doing throughout the country in cultivating a taste for reading and in furnishing the mind beyond the mere requirement of their professional work. And referring to this subject we would invite explanations from teachers as to why it is that school libraries are failures, as we believe they have been.

TRINITY COLLEGE, TORONTO.

On the 16th ult. the annual Convocation of the University of Trinity College, Toronto, was held, at which degrees were conferred upon the following graduates. Appended will be found the list of matriculants in Arts, Divinity, and Medicine. The proceedings at the Convocation were of unusual interest, important addresses with reference to the

welfare and progress of the University having been delivered by the Chancellor, the Hon. George W. Allan, the Right Rev. the Lord Bishop of Toronto, and the Provost. The Convocation was largely attended.

After the introductory proceedings,

DEGREES WERE CONFERRED.

The following were the recipients :—

B.A.—Alexander Allen, R. T. Nichol, W. Belt, W. Farncomb, C. H. Shortt, J. E. Halliwell.

M.A.—W. H. Clarke, R. A. Sutherland.

M.D.—Warner Cornell, A. J. Geikie, C. O'Gorman, W. B. Duck, J. W. Sharpe, A. C. Graham, J. D. Anderson, R. H. Barkwell, W. E. Winskill.

The degree of honorary D.C.L. was conferred on Lieut.-Col. Robinson, a graduate of the University, who has rendered distinguished service in Ashantee and Zululand.

The following were admitted to the Divinity class :—

Allen, A.; Belt, W.; Shortt, C. H.; Moore, R. J.; Greaves, A.; Boyd, J. C.; McCleary, J.; Baylee, C.; Ressor, —; Morley, G. B.; White, J.

MATRICULANTS.

The following were the Matriculants :—

ARTS.

Lampman, A.; Davidson, J. C.; Huds-
peth, R. N.; Townley, T. O.; Beaumont,
R. B.; Godfrey, J. J.; Kendrick, —; Carter,
J.; Clementi, C.; Martin, K.; Turynand,
E. L.; Hamilton, E. B.; Bailey, C. O.;
McCleary, J.; Morley, G. B.; White, J.

MEDICINE.

Frederick Hayes Sawers, Philip Strathy,
Duke Lloyd, Samuel Albert Metherell, Hugh
Richard McGill, William Roche, L. Backus,
Edwin A. Fillmore, Joseph Johnstone, John
Urquhart, John Quirk, Peter Stuart, John
Wesley Ray, L. B. Clemens, James Baugh,
John Francis Martin, William Bonnar, Jef-
frey Talbot Sutherland, Arthur Dalton Smith,
Truman Wallace Duncombe, Richard Mel-
vin Fairchild, Albert Hawk, George McLean,
Henry Kerr, Cassius Belton, Thomas George
Brereton, John Benjamin Gullen, William
Hawley, William Natrass, Alexander Shaver,

Archibald Gracey, Alexander Cameron,
Graham Davidson, William Hector McDon-
ald, John Angus Macdonald, Hugh Henry
Graham, Thomas Conolly Cowan, James
Wilkie Taylor, William Francis Peters,
Krants Frank.

The distribution of prizes then took place, the recipients being greeted with loud applause.

PRIZE LIST.

Hamilton Memorial Prize, George Bons-
field and W. Farncomb, equal.

Prince of Wales' Prize for first class in
classical honours, Alexander Allen.

Chancellor's Prize for first class in classical
honours, Robert T. Nichol.

Third Year.—Prize in Divinity, R. T.
Nichol. Prize in Classics, A. Allen. Prize
in Mathematics, A. J. Belt.

Second Year.—Prize in Divinity, W. M.
Cruttenden. Prize in Classics, W. M. Crut-
tenden. Prize in Mathematics, W. M. Crut-
tenden. Prize in French, G. B. Sage. Prize
in Chemistry, J. M. Kinney.

First Year.—Prize in Divinity, R. N.
Jones. Prize in Classics, A. Greaves. Prize
in Mathematics, E. Van Carson. Prize in
French, John Gibson. Prize in Chemistry,
E. Van Carson. English Essay Prize, R. T.
Nichol. Prize for English Verse, A. Greaves.

Mr. R. T. Nichol read an essay on "The
Liberty of the Press," and Mr. Allan Greaves
a poem "On the Saving of the Colours of the
24th regiment at the battle of Isandula."

NORMAL SCHOOLS.

Result of the Professional Examinations
(December, 1879).

The following are the names of the candi-
dates who passed the recent professional ex-
aminations at the Toronto and Ottawa Nor-
mal Schools :—

TORONTO.

Males.—Peter Anderson, John Barr, Wm.
L. Biggs, C. H. Britton, Edwin Bowes, S.
W. Brown, John Buchanan, R. D. Cameron,
Frank Campbell, Henry Clay, Wm. F. Cale,
L. Davidson, J. McD. Duncan, Duncan A.
Dobie, John H. Haun, W. H. Harlton, J.
Gibson Hume, Henry Johnston, Alex.

Johnson, Andrew Jackson, P. McEachern, J. D. McKay, Jas. M. McKay, C. C. McPhee, Roderick McLennan, C. Mason, John L. Peters, Robert Park, Stanley Phelan, F. G. Potter, C. Sheldon, John Sinclair, Edward Slemmon, Byron Smith, R. Stirrett, J. C. Stoneman, J. H. Thomson, Edward West, D. M. Williams, Henry A. Yenney.

Females.—Amelia A. Bean, Elizabeth Carhill, Anna M. Capron, Carrie Cathcart, Mary Cameron, Nelle Delmage, Bessie Dent, Minnie Emery, Evelina Fausher, Sarah Franklin, Emily Garden, Jessie Grey, Christina Howes, Alice Inglis, Augusta Lambier, Minnie E. La Marche, Elizabeth P. McCausland, Sarah M. McKerrall, Louise McDonald, Isabella Magee, Margaret A. Mills, Margaret M. Mitchell, Carrie Moore, Jessie Moscrip, Francis E. Noble, Euphemia Parle, Mary M. Reid, Lucy O. Seager, Jennie Short, Hattie Skelley, Isabella Smith, Julia Somerville, Jessie Stewart, Jessie M. Thomson, Maria Tomlinson, Mary Turnbull, I. Twohy, H. Twohy, Clara Trasler, Eliza Yates.

OTTAWA.

Males.—Samuel Acheson, P. B. Anderson, O. Avison, Jos. A. Bicknell, W. H. Bingham, W. S. Brown, Fred. P. Burt,

Chas. H. Campbell, John Campbell, N. W. Campbell, Jas. P. Caldwell, J. P. Collins, J. Moore Conerty, R. G. Code, A. R. Davis, A. E. Doherty, D. B. Dowling, J. J. Elliott, C. E. Filkins, W. H. Grant, C. R. Gray, Jas. Hart, R. A. Harrington, Finlay Hicks, J. D. Houston, E. B. Howard, R. D. Irvine, Samuel A. Jackson, Wm. Keirsted, D. I. Kennedy, D. P. Kelleher, John W. King, George Kimmerby, A. B. Krisley, Arthur Lang, W. B. Lawson, P. H. Lennox, John C. Macpherson, A. McCalman, Obadiah M. Cullough, John N. McKendrick, Wm. M. Lellan, Ernest W. Maas, S. L. Mar, Ainsley Megraw, H. H. Moyer, Wm. A. C. Philip, John E. Pickard, I. W. P. K. Robt. Raw, Thos. Swift, A. L. Vans, John Waugh, J. B. Weldon, E. W. W.

Females.—Edith E. Beach, Emma Mary Black, K. A. Brown, Janet Bur, Anastasia Cahill, Elizabeth C. Cam, Sarah Coone, Annie Creighton, Elizabeth Donaldson, E. Dougan, Rosinda Fle, L. Gibson, Teresa E. McCarthy, M. McDougall, Margaret Mills, May Moon, Kate Moon, Meda Pake, Hannah M. Janet Simpson, Ida Jane Stewart, Elizabeth C. Turnbull, Sarah E. Tuamley, M. Walsh, Elizabeth Wickware.

A CRITICISM AND A REPLY.

A correspondent in the *Globe* of the 19th inst., referring to the mistake the Duke of Argyll has made in the narrative of his recent tour in this country, in speaking of the Rocky Mountains as the source of the St. Lawrence, exonerates his Grace from blame on account of the fact that the same misleading statement appears in an extract in the Fifth National Reader. In reply, the Messrs. Campbell & Son, the original publishers of the series of Readers, in the following letter, disclaim responsibility for the appearance of the inaccurate statement. In justice to that firm we give publicity to their communication:—

THE DUKE OF ARGYLL'S VISIT TO CANADA.

To the Editor of the Globe.

SIR,—In your issue of to-day there appears a letter from "Observer" commenting upon an extract from the "Maple Leaf," which forms one of the lessons in the Fifth Reader.

As the Readers were originally prepared and published by us, we ask you to be kind enough to allow us to say in your column that we are not responsible for the insert of this extract. In our original series does not occur, but is one of the emendations made by a committee of the then Council of Public Instruction, when our series of Readers was adopted. For this and similar emendations we had to pay the committee fifty hundred dollars, besides losing our outlay on the original series, which became valueless.

As we have always endeavoured to secure the utmost accuracy in all school books published by us, we trust you will insert an explanation, in order that whatever blame attaches to the insertion of this extract may not rest upon

Your obedient servants,

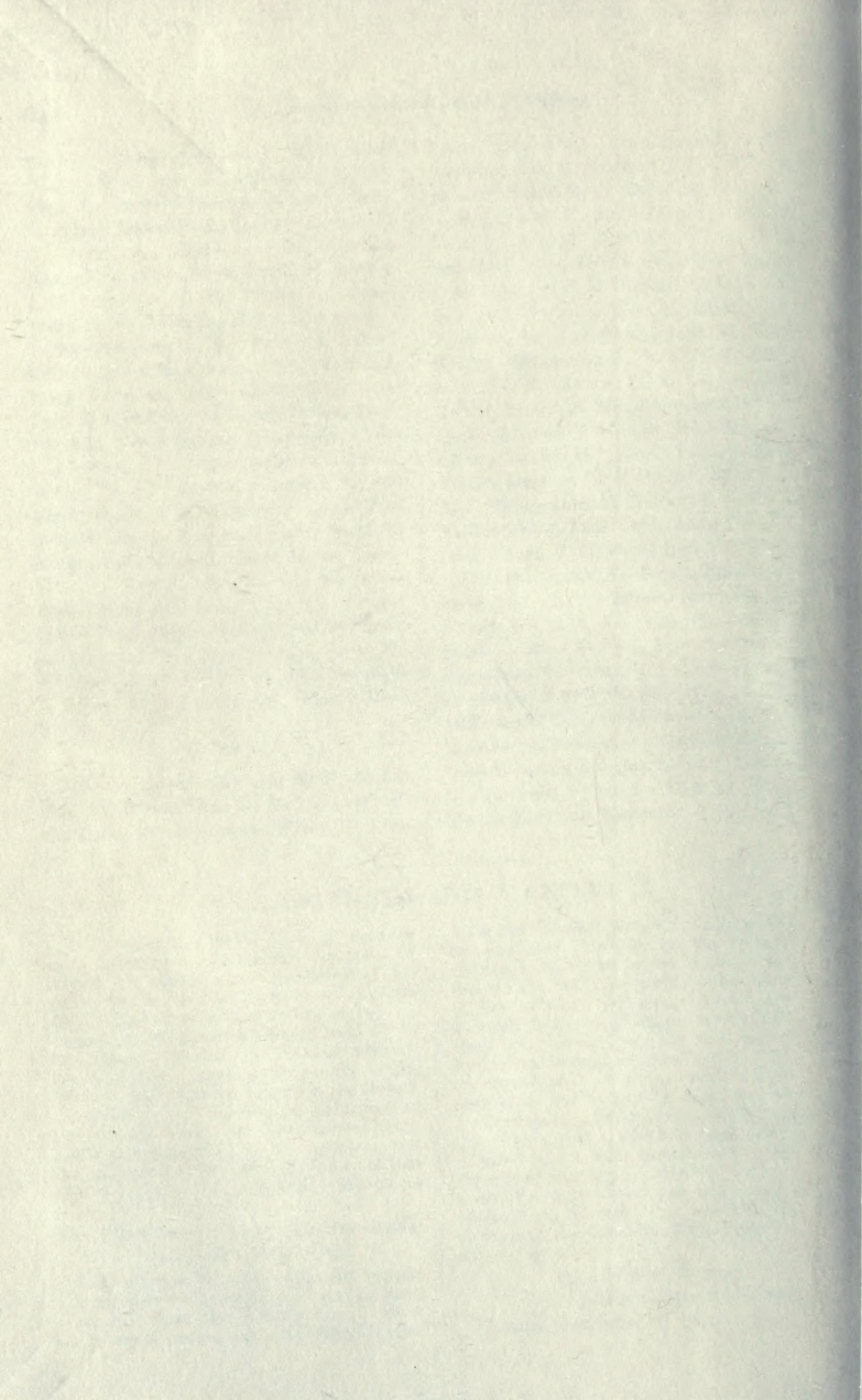
JAMES CAMPBELL & SON

Toronto, December 19, 1879.

236

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